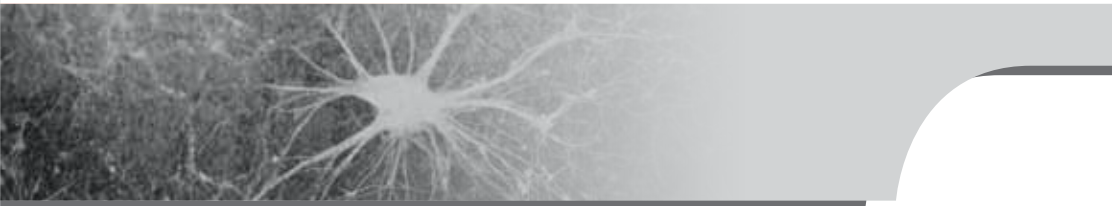



IRANIAN BIOLOGICAL RESOURCE CENTER



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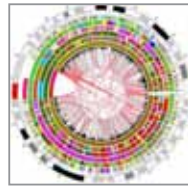
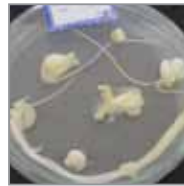
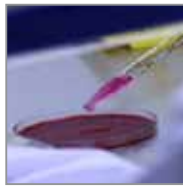
Introduction

Ever Increasing of world population in coming decades will lead to an important challenge of human community about sustainable development of procurement of sufficient food and to achieve a healthy community. Biological resources are as important as other natural resources like water, soil and weather. Paying attention to enormous diversity of animal, plant and microorganism species and to their application will result in national sustainable development. Because of the great importance of biological resources in life science and according to the endorsement of supreme leader of I.R. Iran, Iranian Biological Resources Center was established in 2008 under the authority of Academic Center for Education, Culture and Research (ACECR). Main goal of this center is improving of national researches for collection, preservation and studying of biological resources. Accordingly, in addition to supporting of other biological resource centers of the country as well as establishing of national network of biological resources, this center will attempt to be the pioneer center for collection, completion, organization, standardization and preservation of biological resources to achieve the development of life science and technology, enhancement of life quality and hygiene, improvement of food safety and preservation of natural resources and biodiversity.



Vision:

Attaining a pioneer center for “collection, identification, quality control, classification, registration, preservation, propagation and distribution of types of microorganisms and propagable cells like bacteria, fungi, viruses, types of plant and animal cells and genomic DNA and artificial nucleic acid products” to achieve the development of life science and technology, promotion of life quality and hygiene, preservation of natural resources and globalization of researches and collaborations.



Mission:

- 1- Identification, preparation, and collection of microorganisms, human and animal cells, plant cells and seeds from native and foreign resources.
- 2- Preparation of DNA bank from native and foreign resources.
- 3- Preparation, control and collection of DNA Vectors and their hosts for Biotechnological usage.
- 4- Supporting of BioBanks in other research centers and universities, as well as quality control, identification and preservation of their samples (Backing up) for future uses.
- 5- Registration of newly identified Microorganisms, plant & animal cells and DNA molecules as an act of Intellectual Property.
- 6- Development of relevant regulations, guidelines to be authorized by proper references for preservation of native biological resources.
- 7- Classification and registration of scientific information and data exists in research centers and universities of the country and development of data bank and network for microorganisms, cells, plant species and DNA molecules to provide research centers for universities and industrial centers.
- 8- Establishment of scientific collaboration with national, regional and international researchers, research centers and banks to improve the scientific situation of the center at nationally, regionally and internationally.

Human and Animal Cell Bank

● 7-10

The Human and Animal Cell bank is the most national diverse collection providing qualified human and animal cell cultures for biomedical research as well as their biomaterials. Also, native human and animal cell collections as resources for genetics research are explored and archived there as well. It consists of propagation and quality control facilities and a dedicated research and development unit. Its collections currently comprise more than 350 qualified and authenticated human and animal cell lines.



Human and animal cell bank was established in spring 2009. Before establishing the laboratories, the structure and the design of standard banks were studied and visited about one year. During this study, we consulted with different researchers and organizations in this regard to understand the national priorities and needs. On the other hand, researchers in academic centers were surveyed to meet their requirements. Our consultants have been selected from enthusiastic academia and researchers and biological resource centers.



The missions of the department include:

- 1- Establishment of a national network for human and animal cells
- 2- Supporting of other Iranian cell banks and providing services such as quality control and characterization of cell cultures as well as establishment of a cell bank back up system
- 3- Training and scientific consultancy services for applicants
- 4- Preparation, identification, deposition, expansion, preservation and distribution of human and animal cell lines
- 5- Basic and applicable research related to our missions
- 6- National patent deposition services

Currently, the Human and Animal Cell bank is part of the Iranian Biological Resources network. It has been certified to the quality standard ISO 9001:2008 valid worldwide.

Laboratories :

- Quarantine cell culture lab
- Propagation cell culture lab
- Immortalization cell culture lab
- Training cell culture lab
- Molecular and Biochemical lab
- Real Time PCR lab
- Sterility and mycoplasma quality control lab
- Materials preparation and storage facility
- Cell storage facility
- Washing and sterilization facility
- QA and documentation unit
- Research and Development unit

Microorganisms Bank

● **11-18**

The collection was established on 2008 under the authority of Academic Center for Education, Culture and Research (ACECR) and housed within the Iranian Biological Resource Center and it is one of the largest public collections of microorganisms in the country and a member of WFCC (World Federation of Culture Collections), currently containing strains of archaea, bacteria, molds and yeasts that can be handled in Biosafety level 1 or 2 facilities (Risk Group 1 or 2). The collection performs scientific research including taxonomic studies and screening of environmentally and industrially significant organisms.

Microorganisms bank is working to continuously improve the functions as a microbial resource center, to exploit new microbial resources, to describe novel microbial taxa and to develop the methods for investigating and handling extremophiles and microbial communities. Microorganisms bank has been acquired the certification of ISO 9001:2008 for its quality management system to maintain and improve the quality of its services.

Prokaryotes Laboratory

The species concept is based on a 'polyphasic' approach includes simultaneous description of diagnostic phenotypic features and genomic properties. Individual phenotypic characters used as diagnostic properties are insufficient to delineate a species, but together they provide sufficient descriptive information to allow the definition of a species. The more properties are included in the descriptions, the more robust and stable the resulting classification will be. Different properties have different resolving power; some are species specific, while others are valuable for discriminating genera, families and orders. Properties tested generally include morphological characters, information on motility, mode of energy generation and nutrient utilization, molecular oxygen requirement, growth range of pH and temperature, salt tolerance and requirement. Genotypic information includes 16S rRNA gene sequence analysis, which is a very valuable tool for rapidly placing any isolate within the current classification scheme, at least down to the family and genus level. For final identification of the species, DNA-DNA hybridization tests are the ultimate tool to decide whether two isolates

should be classified in the same species.

At the laboratory of Prokaryotic identification, various methods mentioned above are being applied to fulfill the main needed requirements to fully identification of an unknown microorganism.

Chemotaxonomy Laboratory

Biochemistry of microorganisms have revealed that cell-component analysis can be effectively applied to bacterial systematic, providing the basis of chemotaxonomy. Morphology of microorganisms does not provide quantitative information at the same level as chemotaxonomy. In addition molecular-genetic data make it clear that morphological resemblance does not always imply phylogenetic relationship. Analysis of cell components is coming to be essential tool not only for microbial classification but also for identification. Chemical components that satisfy the following conditions have significant meaning in bacterial systematic:

- 1- They should be distributed universally among the microorganisms to be studied
- 2- The data are homologous among the strains within a taxon, while significant differences exist between the taxa to be differentiated
- 3- Analysis is easily carried out for a large number of samples

Characterization of the cell wall compounds (amino acids and carbohydrates) and cell membrane compounds (polar lipids, isoprenoid quinones in yeast and Gram-negative bacteria) is being conducted at the chemotaxonomy lab. IBRC uses the modern equipments and facilities at the Microorganisms Bank which enhances the abilities of the high qualified young scientists working on the projects.

Mycology Laboratory

Molds unit

Molds unit performs standard methodologies of Screening, Isolation, Purification and Identification to describe fungal isolates. Our focus is on Dikarya together with zygomycetes.

In a general procedure of identification, the purity is checked using

single spore and hyphal tip isolation techniques at the quality control. Detailed morphology and morphometry information are gathered by macroscopic and microscopic studies on various standard media. Phylogenetic analysis of internal transcribed spacer fragment (ITS) reveals important information of the phylogenetic positioning of the given isolate. Also sequence analysis of SSU, LSU, Tub, Act and EF-1 fragments (Multi-gene phylogeny) are used to describe the fungal isolate at the species level, if possible. In certain cases that the isolate seems to be undescribed and novel taxa or due to the absence of reference sequences the higher and as accurately as possible taxon affinities will be reported. However each part of the above mentioned process may be offered or not by the specimen senders and senders are free to offer additional studies, if possible.

The full identification procedure from purification at the quality control division to the multi-gene phylogeny analysis and then taxonomic report delivery doesn't extend rather than three months. But in certain cases it may need more time due to the specific incubations and growth rates or sequencing errors. For urgent cases, contact us before sending specimens. Any information from the geography of isolation, sampling, media and incubations may help accelerating the identification process.

Yeasts unit

Yeasts unit is responsible for collection of yeast cultures with medical and industrial importance and offers services to the national and international scientific community and to other private Institutions. The main objectives of our laboratory are the acquisition, classification, preservation and distribution of cultures of yeast and yeast-like organisms.

We provide a full service for identifying yeasts using Polyphasic approach including morphological analysis, standard physiological profiling, chemotaxonomic analysis and DNA sequencing.

Physiological profiling provides a full report on the characteristics of the strain identified and takes 4-12 weeks to complete from the time of inoculation of the test media. The Physiological profiling methods used are those described in "The Yeasts. A Taxonomic Study", 4th edition

(ed. Kurtzman, C.P., Fell J.W., 1998) and also “Yeasts: Characteristics and Identification” Third Edition, (ed. Barnett J.A., Payne R.W., Yarrow D., 2000). DNA sequence analysis (of the D1/D2 region of the 26S rDNA and/or internal transcribed spacer fragment (ITS) region) is recommended for rapid identification to species level and usually takes from 4 to 8 weeks from receipt of a culture.

The cultures sent for identification should be pure and sent to mycology laboratory securely packed, preferably on agar slopes. The mycology laboratory can attempt isolation of individual strains from mixtures although this will involve an extra charge. Any information already known about the properties of the culture, especially the environment from which it was isolated, should be sent with the culture.

Cultures for identification are dealt with in rotation with those already received. Identification data are kept confidentially and cultures submitted for identification do not enter the open collection without permission from the depositor.

Preservation Laboratory

The establishment and maintenance of Biological Resource Centers (BRCs) requires precise attention to implementation of reliable preservation technologies and appropriate quality control to ensure that recovered cultures and other biological materials perform in the same way as the originally isolated cultures or materials. The preservation lab is the main core of IBRC. On the preservation field, IBRC is fully equipped with all needed facilities. Cryopreservation and freeze drying are two main methods which are being used for long-term preservation of the microorganisms.

Cryopreservation

Cryopreservation has been developed and applied as one of the most secure methods to preserve the microorganisms. By this method cultures are being stored at the mechanical ultra-low freezers and liquid nitrogen tanks at extremely low temperatures. Now, IBRC has required working space for more than 2000 strains of the microorganisms.

Freeze Drying

Freeze-drying is a secure back-up method which is applied at the IBRC. In addition, shipping conditions for lyophilized ampoules are more facile than cryovials, because cryovials must be transferred in freezing temperature, while the lyophilized ampoules can be stored at ambient temperature during transport.

Quality Control

Every deposited strain which is identified by the IBRC must pass the quality control assessments to be preserved via the mentioned methods. This quality control includes macroscopic and microscopic properties, biochemical assays and molecular analysis. Furthermore, periodic quality controls for each strain are being done and three fundamental properties of stored strains must be examined:

1. Purity (Free of any contaminant organisms)
2. Authenticity (Correct identity of each strain)
3. Viability (Survival).

Banking System

This banking scheme can be used to ensure that cultures are subjected to minimum in vitro passages before distribution to researchers and it can also act as the basis for a process map that can be used to establish a quality assurance system with appropriate traceability for bank preparation and quality control. Our master, seed and work lot system will prevent unintentional mutations during sub culturing of strains. By this system, each strain would be cultured only two times since the date of deposition. It means you will receive the same strain with the certain characteristics and traits that depositor of the strains has been reported.

Bioinformatics Unit

Initiated in 2012, the Bioinformatics unit aims to advance microbial systematics and phylogenetic systematics in Iranian Biological Resource Center (IBRC).

Research in the Bioinformatics unit focuses on the application of microbial phylogenetics. The importance of precise reconstruction of evolutionary history extends far beyond the limitations of evolutionary

microbiology. Phylogenetics is now a fundamental component of research in molecular biology, genomics, medicine, ecology, agriculture, epidemiology, and even forensics.

The Bioinformatics unit evaluates, creates, and applies phylogenetic and phylogenomic methods to some of today's most pressing questions in microbiology. Our work concerns the development of new experimental and computational tools and data bases for discovery through sequencing and other high-throughput genomics, epigenomics, and informatics.

This Group is also working on secondary structure of ribosomal RNA, metabolic network analysis and Average Nucleotide Identity (ANI).

General services includes: Quality assessment of 16S rRNA sequence based on secondary structure stability and conserved regions in different taxonomic levels, preparation of sequence sets together with related data for submission to GenBank and phylogenetic analysis by MEGA5, Phylip or ARB software.



Microalgae Laboratory

Algae are very diverse organisms which their size has a wide range from 1 micron to 50 meters as Kelp aquatic forests. Their vegetative morphology or thallus is in the following categories: Motile and non-motile unicellular, motile or non-motile colonies, pseudo-filamentous, filamentous with true or false branches, pseudo-paranchimatous and paranchimatous, coenocytic or siphonous. They have distributed widely in the nature and have very important ecological effects.

Algae are not a monophylic group of organisms with homogeny taxonomic structure but they are polyphyletic group. The most important primary characteristics for identification are morphology, photosynthetic pigments, food reservoir, cell cover and other cellular organization.

Recently the molecular tools are making a revolution in algal taxonomy however the classic taxonomy is still useful and applies for systematics.

There is no strict consensus about the number of algal divisions and 8 to 11 has been mentioned in different references:

Green algae, Cyanobacteria (Blue-Greenalgae), Diatoms, Euglenoids, Chrysophyte, Yellow-Green algae, Red algae, Brown algae, Dinoflagellates, Cryptomonads and Haptophytes.



Plant Bank

● 19-22

Plant Bank is one of the four banks of the Iranian Biological Resource Center. Collection, conservation and management of the plant materials in Iran are the goals of the bank. Creating information networks and information services for researchers and related institutes will be the next step.





The main activities of this bank are:

A. Plant tissue culture

Plant tissue culture is the science of growing plant cells, tissues or organs isolated from the mother plant, on artificial media. Many plant explants such as garlic, potato and anthurium are stored in this laboratory.

B. Plant Cryopreservation

Cryopreservation is a process where cells or whole tissues are preserved by cooling to low sub-zero temperatures, such as -196°C . Orthodox seeds of different species are cryopreserved in our laboratory. In near future we will maintain vegetative germplasm and recalcitrant seeds in this laboratory.

C. Seed storage bank

A seedbank stores seeds as a source for planting in case seed reserves elsewhere are destroyed. Seeds are dried to a moisture content of less than 5% and then stored at 4 and -20°C . We conserved almost 8600 seed samples collected from different regions of Iran or received from abroad countries.

D. Herbarium

Herbarium is a collection of dried and identified plant specimens which for long-time periods will be preserved in a rational order. Surely identification is basic to any scientific activity. For name determining, we amass herbarium vouchers, besides each plant materials. During



the 4 last years, we have collected and identified about 5000 specimens nearly all over our country. As our expeditions will be continuing, our collection will be increasing.

E. Essential oils and plant extract bank

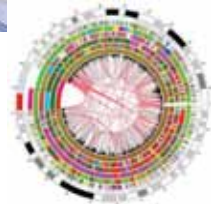
Extracts are collection of crude mixtures extracted from different parts of plants sampling the flora of Iran. In our database we conserve 850 extracts and plant materials (stem, leave, flower and root) in as 4 °C. The phytochemical laboratories are capable of generating plant extracts from fresh or dried plant material and possess analytical methodologies including TLC and HPLC.

F. Cytogenetics

Cytogenetics is a hybrid science that combines cytology and genetics. The science includes techniques to obtain precise information on chromosome numbers, and chromosome structures. Nowadays our lab with having advanced equipments can easily study the numerical and structural changes of chromosomes in higher plants.

Molecular Bank

● 23-26



Molecular bank is one of the four banks of the Iranian Biological Resource Center. The main mission of the bank is to apply advanced technologies to identify, assess and store genetic materials. It also provides services for molecular analysis and genotyping of plants, cell lines and microorganisms. In this regard, scientific and technical services, manufacturing of various products related to molecular biology in order to accelerate and reduce the cost of services and holding of diverse training courses are the bank's priorities which can help to develop and enhance the technical capabilities of graduates and academic researchers.

Laboratories

- Core facility

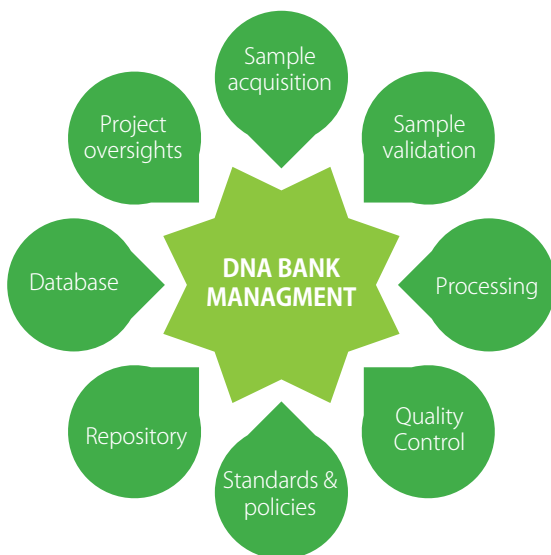
DNA Bank

Nowadays DNA banks are notified as strategic part of modern genbanks. Because of their important roles in improving the genbank management, via providing the foundation for phylogenetic relationship studies and identifying the gaps between exist collections as well as most variable genotypes or organisms. In this way, DNA bank of IBRC has been established since 2012. The goals of IBRC DNA bank are:

1-Long-term storage of DNA material with high quality from cell lines and tissues of plant, human and animal as well as Microorganisms, native and recombinant vectors.

2- Accessibility of the well documented DNA materials for national and international institutes to employ in molecular biology researches.

3- Complete on-line documentation of each sample with a unique bar-code, including Information about the DNA samples, the vouchers and the collections.



Also, the IBRC's vector bank has been established in order to collect, construct and preserve of biologically important vectors and host in the standard conditions to provide the most reliable vectors and host for the researchers.

Researches

At the present, research preferences of the molecular bank are the genome sequencing, quantitative microbial community analysis of Human, food and environment analysis using pyrotagged sequencing technique and molecular identification and phylogenetical analysis of plants, animals and microorganisms.

Two Iranian bacteria complete genome sequencing and registration
Regarding the main goals of IBRC to use the cutting edge knowledge for analysis, identification, preservation and application of Iranian valuable biological and genetical resources, the molecular bank proudly introduce the name of IBRC as the first center in Iran for sequencing, annotation, advance bioinformatic analysis, and registration of two native halophilic bacterial complete genome named *Nesterenkonia* sp. F and *Oceanimonas* sp. GK1.



IBRC Services

● **27**-34

Specialty Service Affairs

IBRC has a Center for Biotechnology Services which has been called the Specialty Service, bringing biomaterials and biological services providing researchers the tools they need to undertake world-class research. The aim of the Specialty Services is to provide internationally competitive core facilities open to all researchers within the Colleges, industries and medical centers. In fulfillment of this objective, we intend to facilitate services especially for Identification, preparation, and collection of microorganisms, human and animal cells, Molecular components such as DNA, Vector and host Cells, plant cells and seeds in cooperation with all IBRC bio-banks. Furthermore, our collaboration with all researchers and world bio-banks to identify, preserve and deposit new biological samples for future research. In order to provide more information, please do not hesitate to contact us through the email or call-center indicated below:

service@ibrc.ir



Human & Animal Cell Bank Services

NO.	Identification and Cell Preparation
1	Mycoplasma testing: <ul style="list-style-type: none">• Classical broth-agar culture isolation• PCR analysis• DNA staining
2	Sterility testing
3	PCR identify verification of cell lines: <ul style="list-style-type: none">• Species identification• Inter species cross-contamination
4	Authentication of human cell lines
5	Cell line validation testing certification
6	Characterization of new cell lines
7	Providing the growth curve of cell lines on request
8	Providing the mammalian fibroblast cell lines
9	Distribution of cell lines on request
10	DNA and RNA from cell lines
11	DNA and RNA isolation from human and animal biological samples
12	Real time PCR services for gene expression analysis
13	Safe deposits
14	Cell culture supernatants preparation
15	Assay ready cells
16	MTT cytotoxicity assay
17	Consultation services <ul style="list-style-type: none">• Establishment of a cell culture room• Establishment of a cell bank• Establishment of required techniques in cell banking

Microorganisms Bank Services

NO. (Full phenotypic characterization of Molds (Morphology, Morphometry, Physiology

- 1 Prokaryotic strain purification
- 2 Partial identification of Bacteria
- 3 Full phenotypic characterization of Bacteria
- 4 Full phenotypic characterization of Actinomycetes
- 5 Full phenotypic characterization of Archaea and extremophiles
- 6 General identification of bacteria using API minikits

NO. Full Phenotype-based Characterization of Yeasts (Physiology, Biochemistry, Morphology)

- 1 Purification of Mold and Yeast strains
- 2 Preliminary Phenotype-based characterization of Molds and Yeasts
- 3 Full phenotypic characterization of molds (Morphology, Morphometry, physiology)
- 4 Full Phenotype-based Characterization of Yeasts (Physiology, Biochemistry, Morphology)

General Services	
1	Preparation of freeze-dried or Suspension of spores

Preservation Services	
1	Preparation of Freeze-Dried Ampoule from Received Non-extremophilic or Rapidly Growing Bacteria
2	Preparation of Freeze-Dried Ampoule from Received Extremophilic and Fastidious Bacteria
3	Preparation of Freeze-Dried Ampoule from Received Archaea Strain
4	Preparation of Freeze-Dried Ampoule from Received Fungal Strain
5	Freeze-Drying of Microbial Biomass
6	Offering of Purchased Bacterial Strain as Freeze-Dried Ampoule
7	Offering of Purchased Archaea Strain as Freeze-Dried Ampoule
8	Offering of Purchased Fungal Strain as Freeze-Dried Ampoule
9	Offering of Purchased Bacterial Strain as Actively Growing Culture
10	Offering of Purchased Archaea Strain as Actively Growing Culture
11	Offering of Purchased Fungal Strain as Actively Growing Culture
12	Reactivation of Freeze-Dried Ampoule and Preparation of its Actively Growing Culture

Genotype-Identification of Microorganisms	
1	Complete phylogenetic study by rDNA sequence analysis with MEGA5
2	Partial 16S rRNA sequence analysis
3	Large volume bacterial genomic DNA extraction (25ml, 40-50ng/μl)
4	DNA base composition (G + C Content) by HPLC
5	Identification of fungi (Molds and Yeasts) based on the sequence analysis of one of the nrRNA gene fragments including: ITS, D1-D2, SSU and assessment of the similarity in databases
6	Identification of Fungal isolates using MLST approach on the basis of sequence analysis of two or more fragments of nrRNA gene (SSU,ITS,D1-D2) and protein coding genes including Actin, EF-1, and Tubulin
7	Phylogenetic analysis of fungal isolates using sequence analysis of a given fragment (D1-D2 and/or ITS)
8	Bioinformatic and Phylogenetic analysis using MLST (Using rRNA fragments and protein coding genes: SSU, LSU, ITS, Act, Tub, EF-1)
9	rDNA Sequence Evolution (Chimera check, secondary Structure and conserved region assessment)
10	Complete phylogenetic study by rDNA sequence analysis with ARB

Chemotaxonomy of Microorganisms	
1	Biomass production for analysis
2	Peptidoglycan typing
3	Cell Wall preparation for peptidoglycan typing
4	Diaminopimelic acid analysis
5	Analysis of whole sugar content
6	Respiratory quinones analysis in Gram negative bacteria and yeasts
7	Polar Lipid Analysis

Molecular Services

NO.	Identification and Cell Preparation
1	DNA Extraction from various source samples
2	Ribotyping of bacteria and archaea based on 16s rRNA gene (full length)
3	Ribotyping of yeasts and fungi
4	Molecular phylogenetic analysis of plants using ITS and ETS regions and chloroplast's genes
5	Molecular Fingerprinting of plants and animals using micro satellite (SSR) markers.
6	DNA barcoding of animals based on COI encoding gene sequence analysis.
7	Cloning of eukaryotic and prokaryotic functional genes into expressional vectors.

Plant Services

NO.	Plant Tissue Culture Services
1	Optimization of plant micro propagation protocol (Plants with a history of research work)
2	Optimization of plant micro propagation protocol (Plants without a history of research work)
3	Micro propagation of Woody plants (Multiplying the prepared samples at least 100 number)
4	Micro propagation of Herbaceous plants (Multiplying the prepared samples at least 100 number)
5	Optimization of plant cryopreservation protocol (for a species)
6	Conservation of prepared samples in cryopreservation
7	Preparation of plant tissue culture media

NO.	Plant Cytogenetics services
1	Meiosis and meiosis abnormalities studies
2	Mitosis studies and karyotype preparation
3	Constitutive Heterochromatic Banding

NO.	Herbarium Services
1	Floristic studies on protected and unprotected areas (Collecting; Identifying; and preparing of herbarium specimens, geographical distribution maps)
2	Floristic studies on protected and unprotected areas (Seeds and plant specimens collecting; Identifying; and preparing of herbarium specimens, digital photos and geographical distribution maps)
3	Plant identification (Identifying of Dicots; Poaceae and Orchidaceae family plants)
4	Plant identification (Identifying of Monocots plants)

NO.	Phytochemical Services
1	Evaluation of the Antioxidant Activity (DPPH)
2	Evaluation of the Antioxidant Activity (POD)
3	Evaluation of the Antioxidant Activity (CAT)
4	Evaluation of the Antioxidant Activity (SOD)
5	Total phenol analysis
6	Phytochemical analysis with RP-HPLC
7	Extraction of essential oil
8	Plant extraction
9	Preparation of essential oil (100μl)
10	Preparation of extract (5ml)
11	SDS-PAGE Electrophoresis
12	PAGE Electrophoresis
13	Zymogram
14	Total protein analysis

products

● **35-102**

General Cell Collection

No	Cell name	General character	Species
1	293LTV	Embryonic Kidney Cell Line	Human
2	3T3L1	Embryo	Mouse
3	A-375	Skin Malignant Melanoma	Human
4	A-549	Lung Carcinoma	Human
5	ACHN	Renal Adenocarcinoma	Human
6	AGS	Gastric Adenocarcinoma	Human
7	AsPC-1	Pancreatic Adenocarcinoma	Human
8	B95-8	Blood Lymphocyte	Cotton-top Tamarin Monkey
9	BETA-TC-3	Pancreas Insulinoma (Beta-Tumor)	Mouse
10	BT-20	Breast Carcinoma	Human
11	BT-474	Breast Ductal Carcinoma Cell Line	Human
12	BT-549	Breast carcinoma	Human
13	C-643	Anaplastic thyroid carcinoma	Human
14	Caco-2	Colorectal Adenocarcinoma	Human
15	CHO-K1	Ovary Fibroblastoid Cell	Chinese Hamster
16	COS-7	SV40 Transformed Kidney Cell	African Green Monkey
17	End M	Stem Cell Endometrium	Human
18	HEK-293	Embryo Kidney Cell Line	Human
19	Hep-G2	Hepatocellular Carcinoma	Human
20	Hs578T	Breast Carcinoma	Human
21	HT1080	Connective Tissue Fibrosarcoma	Human

22	HT-29	Colorectal Adenocarcinoma	Human
23	Jurkat	Acute Lymphocyte Leukemia (ALL)	Human
24	K-562	Chronic Myelogenous Leukemia	Human
25	L-929	Normal Subcutaneous Areolar and Adipose Connective Tissue Fibroblast	Mouse(strain C3H/An)
26	Lenti-X 293T cell line	Embryonic Kidney Cell Line	Human
27	MC4-L2	Mammary Adenocarcinoma	Mouse
28	MCF10-A	Mamary gland epithelial cells	Human
29	MCF-7	Breast Adenocarcinoma	Human
30	MDA-MB-468	Breast adenocarcinoma	Human
31	MEFs-1	Foetal Fibroblast	Mouse
32	MKN-45	Gastric Adenocarcinoma Cell Line	Human
33	MPC-11	Myeloma Cell line	Mouse (BALB/C)
34	MRC-5	Foetal Lung Fibroblast	Human
35	MZ-45	Lymphoblastoid Cell (Healthy)	Human(Iranian, Mazani)
36	NFS-60	Myelocytic Leukemia	Mouse
37	NIH3T3	Embryonic Fibroblast Cell Line	Mouse
38	P19	Mouse embryonal carcinoma	Mouse
39	Panc-1	Pancreas Carcinoma(Ductal Cell Origin)	Human
40	Platinum-A (Plat- A)	Embryonic Kidney Cell Line	Human

41	Platinum-E (Plat-E)	Embryonic Kidney	Human
42	Raw 264.7	Peritoneal Monocyte Macrophage	Mouse
43	RIN-5F	Pancreatic Beta Cell Tumor	Rat
44	SF9	Ovary Cell Line	Insect
45	SK-BR-3	Breast Adenocarcinoma Cell(Pleural Effusion)	Human
46	Sp2/0-Ag14	Mouse B Cell Hybridoma	Mouse
47	SW-1736	Anaplastic thyroid carcinoma	Human
48	U266B1	Myeloma	Human
49	Vero	Kidney Epithelium	African Green monkey
50	WEHI-3B	Peripheral Blood Myelomonocytic leukemia	Mouse
51	WEHI-3B*	Blood Myelomonocytic Leukemia	Mouse
52	ZR-75-1	Breast Ductal Carcinoma	Human

Lymphoblastoid cell collection

No	Cell No.	Cell name	Ethic origin	Gender	Age
1	IBRC C10238	AB-170	Iranian, Arab	Female	31 years
2	IBRC C10111	FS-1	Iranian, Fars	Female	48 years
3	IBRC C10131	FS-13	Iranian, Fars	Male	38 years
4	IBRC C10132	FS-14	Iranian, Fars	Female	28 years
5	IBRC C10133	FS-15	Iranian, Fars	Female	27 years
6	IBRC C10222	FS-162	Iranian, Fars	Male	24 years
7	IBRC C10236	FS-163	Iranian, Fars	Male	27 years
8	IBRC C10252	FS-167	Iranian, Fars	Male	42 years
9	IBRC C10225	FS-169	Iranian, Fars	Male	27 years
10	IBRC C10271	FS-171	Iranian, Fars	Male	25 years
11	IBRC C10253	FS-174	Iranian, Fars	Female	32 years
12	IBRC C10229	FS-179	Iranian, Fars	Female	26 years
13	IBRC C10246	FS-185	Iranian, Fars	Male	27 years
14	IBRC C10112	FS-2	Iranian, Fars	Female	24 years
15	IBRC C10134	FS-21	Iranian, Fars	Female	33 years
16	IBRC C10120	FS-22	Iranian, Fars	Female	47 years
17	IBRC C10113	FS-3	Iranian, Fars	Female	55 years
18	IBRC C10114	FS-4	Iranian, Fars	Female	25 years
19	IBRC C10162	FS-42	Iranian, Fars	Female	32 years
20	IBRC C10118	FS-8	Iranian, Fars	Female	31 years
21	IBRC C10130	FS-9	Iranian, Fars	Male	40 years
22	IBRC C10227	GL-175	Iranian, Gilak	Male	47 years
23	IBRC C10241	GL-176	Iranian, Gilak	Male	31 years
24	IBRC C10135	GI-24	Iranian, Gilak	Male	28 years
25	IBRC C10123	GL-29	Iranian, Gilak	Male	23 years
26	IBRC C10124	GL-31	Iranian, Gilak	Male	44 years
27	IBRC C10223	KD-164	Iranian, Kurd	Female	26 years
28	IBRC C10224	KD-168	Iranian, Kurd	Male	32 years

29	IBRC C10254	KD-184	Iranian, Kurd	Male	43 years
30	IBRC C10237	LR-166	Iranian, Lor	Female	27 years
31	IBRC C10242	LR-178	Iranian, Lor	Male	34 years
32	IBRC C10239	MZ-172	Iranian, Mazani	Male	25 years
33	IBRC C10169	MZ-45	Iranian, Mazani	Male	29 years
34	IBRC C10235	TK-140	Iranian, Turk	Male	44 years
35	IBRC C10272	TK-142	Iranian, Turk	Male	55 years
36	IBRC C10269	TK-144	Iranian, Turk	-	-
37	IBRC C10247	TK-145	Iranian, Turk	Female	45 years
38	IBRC C10248	TK-148	Iranian, Turk	Male	45 years
39	IBRC C10249	TK-155	Iranian, Turk	Male	29 years
40	IBRC C10270	TK-156	Iranian, Turk	Male	22 years
41	IBRC C10250	TK-160	Iranian, Turk	Female	35 years
42	IBRC C10251	TK-165	Iranian, Turk	Male	26 years
43	IBRC C10240	TK-173	Iranian, Turk	Male	33 years
44	IBRC C10228	TK-177	Iranian, Turk	Male	30 years
45	IBRC C10243	TK-180	Iranian, Turk	Female	29 years
46	IBRC C10230	Tk-181	Iranian, Turk	Male	46years
47	IBRC C10244	TK-182	Iranian, Turk	Male	34 years
48	IBRC C10245	TK-183	Iranian, Turk	Male	32 years
49	IBRC C10119	TK-20	Iranian, Turk	Male	43 years
50	IBRC C10121	TK-23	Iranian, Turk	Male	50 years
51	IBRC C10122	TK-28	Iranian, Turk	Male	32 years
52	IBRC C10125	TK-32	Iranian, Turk	Male	50 years
53	IBRC C10129	Tk-36	Iranian, Turk	Male	24 years
54	IBRC C10168	TK-44	Iranian, Turk	Male	38 years
55	IBRC C10172	TK-46	Iranian, Turk	Male	26 years
56	IBRC C10170	TK-47	Iranian, Turk	Male	32 years
57	IBRC C10171	TK-48	Iranian, Turk	Male	28 years
58	IBRC C10115	TK-5	Iranian, Turk	Male	38 years

59	IBRC C10176	TK-50	Iranian, Turk	Male	37 years
60	IBRC C10194	TK-51	Iranian, Turk	Male	32 years
61	IBRC C10173	TK-52	Iranian, Turk	Male	23 years
62	IBRC C10174	TK-53	Iranian, Turk	Male	27 years
63	IBRC C10175	TK-54	Iranian, Turk	Male	25 years
64	IBRC C10177	TK-56	Iranian, Turk	Female	27 years
65	IBRC C10116	TK-6	Iranian, Turk	Female	28 years
66	IBRC C10117	TK-7	Iranian, Turk	Male	39 years
67	IBRC C10178	TK-84	Iranian, Turk	Male	41 years
68	IBRC C10179	TK-86	Iranian, Turk	Male	43 years
69	IBRC C10180	TK-88	Iranian, Turk	Female	51 years
70	IBRC C10185	TK-89	Iranian, Turk	Male	40 years
71	IBRC C10181	TK-90	Iranian, Turk	Female	50 years
72	IBRC C10182	TK-92	Iranian, Turk	Female	17 years
73	IBRC C10183	TK-93	Iranian, Turk	Female	33 years
74	IBRC C10195	ZL-114	Iranian, Zaboli	Male	33 years
75	IBRC C10199	ZL-117	Iranian, Zaboli	Female	33 years
76	IBRC C10186	ZL-70	Iranian, Zaboli	Male	19 years
77	IBRC C10187	ZL-71	Iranian, Zaboli	Male	40 years
78	IBRC C10188	ZL-73	Iranian, Zaboli	Male	24 years
79	IBRC C10189	ZL-74	Iranian, Zaboli	Male	61 years
80	IBRC C10221	ZL-76	Iranian, Zaboli	Male	57 years
81	IBRC C10184	ZL-77	Iranian, Zaboli	Male	20 years
82	IBRC C10198	ZL-78	Iranian, Zaboli	Male	20 years

Fibroblast cell collection

No.	Cell No.	Cell name	Species
1	IBRC C10003	Bo01	Bovine
2	IBRC C10031	Bo02	Bovine
3	IBRC C10065	CaBa002	Camel(Camelus bactrianus)
4	IBRC C10048	CaBa01	Camel(Camelus bactrianus)
5	IBRC C10060	CaBa02	Camel(Camelus bactrianus)
6	IBRC C10063	CaBa03	Camel(Camelus bactrianus)
7	IBRC C10062	CaBa04	Camel(Camelus bactrianus)
8	IBRC C10064	CaBa05	Camel(Camelus bactrianus)
9	IBRC C10277	CaBa06	Camel(Camelus bactrianus)
10	IBRC C10278	CaBa07	Camel(Camelus bactrianus)
11	IBRC C10279	CaBa08	Camel(Camelus bactrianus)
12	IBRC C10280	CaBa09	Camel(Camelus bactrianus)
13	IBRC C10281	CaBa10	Camel(Camelus bactrianus)
14	IBRC C10282	CaBa11	Camel(Camelus bactrianus)
15	IBRC C10283	CaBa12	Camel(Camelus bactrianus)
16	IBRC C10284	CaBa13	Camel(Camelus bactrianus)
17	IBRC C10288	CaBa17	Camel(Camelus bactrianus)
18	IBRC C10297	CaBa23	Camel(Camelus bactrianus)
19	IBRC C10298	CaBa24	Camel(Camelus bactrianus)
20	IBRC C10158	CaHo-01	Horse(Caspian)
21	IBRC C10159	CaHo-02	Horse(Caspian)
22	IBRC C10160	CaHo-03	Horse(Caspian)
23	IBRC C10161	CaHo-04	Horse(Caspian)
24	IBRC C10196	CaHo-05	Horse(Caspian)
25	IBRC C10197	CaHo-06	Horse(Caspian)
26	IBRC C10200	CaHo-07	Horse(Caspian)
27	IBRC C10201	CaHo-08	Horse(Caspian)
28	IBRC C10202	CaHo-09	Horse(Caspian)

29	IBRC C10203	CaHo-10	Horse(Caspian)
30	IBRC C10204	CaHo-11	Horse(Caspian)
31	IBRC C10205	CaHo-12	Horse(Caspian)
32	IBRC C10206	CaHo13	Horse(Caspian)
33	IBRC C10207	CaHo14	Horse(Caspian)
34	IBRC C10208	CaHo-15	Horse(Caspian)
35	IBRC C10209	CaHo-16	Horse(Caspian)
36	IBRC C10210	CaHo-17	Horse(Caspian)
37	IBRC C10211	CaHo-18	Horse(Caspian)
38	IBRC C10212	CaHo-19	Horse(Caspian)
39	IBRC C10214	CaHo-21	Horse(Caspian)
40	IBRC C10215	CaHo-22	Horse(Caspian)
41	IBRC C10216	CaHo-23	Horse(Caspian)
42	IBRC C10217	CaHo24	Horse(Caspian)
43	IBRC C10218	CaHo25	Horse(Caspian)
44	IBRC C10219	CaHo26	Horse(Caspian)
45	IBRC C10257	CaHo31	Horse(Caspian)
46	IBRC C10258	CaHo32	Horse(Caspian)
47	IBRC C10259	CaHo33	Horse(Caspian)
48	IBRC C10260	CaHo34	Horse(Caspian)
49	IBRC C10261	CaHo35	Horse(Caspian)
50	IBRC C10262	CaHo36	Horse(Caspian)
51	IBRC C10263	CaHo37	Horse(Caspian)
52	IBRC C10264	CaHo38	Horse(Caspian)
53	IBRC C10273	CaHo39	Horse(Caspian)
54	IBRC C10275	CaHo41	Horse(Caspian)
55	IBRC C10276	CaHo42	Horse(Caspian)
56	IBRC C10294	CaHo43	Horse(Caspian)
57	IBRC C10295	CaHo44	Horse(Caspian)
58	IBRC C10296	CaHo45	Horse(Caspian)

59	IBRC C10300	CaHo47	Horse(Caspian)
60	IBRC C10301	CaHo48	Horse(Caspian)
61	IBRC C10302	CaHo49	Horse(Caspian)
62	IBRC C10303	CaHo50	Horse(Caspian)
63	IBRC C10304	CaHo51	Horse(Caspian)
64	IBRC C10305	CaHo52	Horse(Caspian)
65	IBRC C10306	CaHo53	Horse(Caspian)
66	IBRC C10308	CaHo55	Horse(Caspian)
67	IBRC C10004	DoSa01	Dog(Sangsari)
68	IBRC C10005	DoSa02	Dog(Sangsari)
69	IBRC C10006	DoSa03	Dog(Sarabi)
70	IBRC C10008	DoSa04	Dog(Sangsari)
71	IBRC C10009	DoSa05	Dog(Sangsari)
72	IBRC C10010	DoSa06	Dog(Sarabi)
73	IBRC C10011	DoSa07	Dog(Sarabi)
74	IBRC C10079	GAC1	Human
75	IBRC C10032	Go01	Goat
76	IBRC C10309	Hu02	Human
77	IBRC C10102	L-929	Mouse(Strain C3H/An)
78	IBRC C10315	MEFs-1	Mouse
79	IBRC C10070	Mo03	Mouse
80	IBRC C10068	Mo06	Mouse
81	IBRC C10073	Mo09	Mouse
82	IBRC C10313	MRC-5	Human
83	IBRC C10100	NIH3T3	Mouse
84	IBRC C10069	Ra 01	Rabbit
85	IBRC C10074	RWE01	Rat
86	IBRC C10078	RWE02	Rat
87	IBRC C10076	RWT01	Rat
88	IBRC C10077	RWT02	Rat

89	IBRC C10030	Sh01	Sheep
90	IBRC C10014	ShB02	Sheep(Baluchi)
91	IBRC C10015	ShB03	Sheep(Baluchi)
92	IBRC C10016	ShB04	Sheep(Baluchi)
93	IBRC C10017	ShB05	Sheep(Baluchi)
94	IBRC C10019	ShLb01	Sheep(Lori Bakhtiari)
95	IBRC C10020	ShLb02	Sheep(Lori Bakhtiari)
96	IBRC C10021	ShLb03	Sheep(Lori Bakhtiari)
97	IBRC C10022	ShLb04	Sheep(Lori Bakhtiari)
98	IBRC C10023	ShLb05	Sheep(Lori Bakhtiari)
99	IBRC C10024	ShLb06	Sheep(Lori Bakhtiari)
100	IBRC C10025	ShLb07	Sheep(Lori Bakhtiari)
101	IBRC C10026	ShLb08	Sheep(Lori Bakhtiari)
102	IBRC C10027	ShLb09	Sheep(Lori Bakhtiari)
103	IBRC C10040	ShM1	Sheep(Mehrabani)
104	IBRC C10036	ShM10	Sheep(Mehrabani)
105	IBRC C10033	ShM11	Sheep(Mehrabani)
106	IBRC C10044	ShM12	Sheep(Mehrabani)
107	IBRC C10042	ShM13	Sheep(Mehrabani)
108	IBRC C10034	ShM14	Sheep(Mehrabani)
109	IBRC C10045	ShM15	Sheep(Mehrabani)
110	IBRC C10041	ShM2	Sheep(Mehrabani)
111	IBRC C10043	ShM3	Sheep(Mehrabani)
112	IBRC C10039	ShM4	Sheep(Mehrabani)
113	IBRC C10037	ShM5	Sheep(Mehrabani)
114	IBRC C10046	ShM6	Sheep(Mehrabani)
115	IBRC C10047	ShM7	Sheep(Mehrabani)
116	IBRC C10038	ShM8	Sheep(Mehrabani)
117	IBRC C10035	ShM9	Sheep(Mehrabani)
118	IBRC C10052	ShZ01	Sheep(Zandi)

119	IBRC C10058	ShZ02	Sheep(Zandi)
120	IBRC C10059	ShZ03	Sheep(Zandi)
121	IBRC C10056	ShZ04	Sheep(Zandi)
122	IBRC C10054	ShZ05	Sheep(Zandi)
123	IBRC C10053	ShZ06	Sheep(Zandi)
124	IBRC C10051	ShZ07	Sheep(Zandi)
125	IBRC C10061	ShZ08	Sheep(Zandi)
126	IBRC C10055	ShZ09	Sheep(Zandi)
127	IBRC C10057	ShZ10	Sheep(Zandi)

Animal cell collection

No.	Cell No.	Cell name	General character	Species
1	IBRC C10050	B95-8	Blood Lymphocyte	Cotton-top Tamarin Monkey
2	IBRC C10001	Vero	Kidney Epithelium	African Green monkey
3	IBRC C10146	COS-7	SV40 Transformed Kidney Cell	African Green Monkey
4	IBRC C10003	Bo01	Skin Fibroblast	Bovine
5	IBRC C10031	Bo02	Skin Fibroblast	Bovine
6	IBRC C10048	CaBa01	Skin Fibroblast	Camel(Camelus Bacterianus)
7	IBRC C10060	CaBa02	Skin Fibroblast	Camel(Camelus Bacterianus)
8	IBRC C10062	CaBa04	Skin Fibroblast	Camel(Camelus Bacterianus)
9	IBRC C10063	CaBa03	Skin Fibroblast	Camel(Camelus Bacterianus)
10	IBRC C10064	CaBa05	Skin Fibroblast	Camel(Camelus Bacterianus)
11	IBRC C10065	CaBa002	Skin Fibroblast	Camel(Camelus Bacterianus)

12	IBRC C10277	CaBa06	Skin Fibroblast	Camel(Camelus Bacterianus)
13	IBRC C10278	CaBa07	Skin Fibroblast	Camel(Camelus Bacterianus)
14	IBRC C10279	CaBa08	Skin Fibroblast	Camel(Camelus Bacterianus)
15	IBRC C10280	CaBa09	Skin Fibroblast	Camel(Camelus Bacterianus)
16	IBRC C10281	CaBa10	Skin Fibroblast	Camel(Camelus Bacterianus)
17	IBRC C10282	CaBa11	Skin Fibroblast	Camel(Camelus Bacterianus)
18	IBRC C10283	CaBa12	Skin Fibroblast	Camel(Camelus Bacterianus)
19	IBRC C10284	CaBa13	Skin Fibroblast	Camel(Camelus Bacterianus)
20	IBRC C10285	CaBa14	Skin Fibroblast	Camel(Camelus Bacterianus)
21	IBRC C10286	CaBa15	Skin Fibroblast	Camel(Camelus Bacterianus)
22	IBRC C10287	CaBa16	Skin Fibroblast	Camel(Camelus Bacterianus)
23	IBRC C10288	CaBa17	Skin Fibroblast	Camel(Camelus Bacterianus)
24	IBRC C10289	CaBa18	Skin Fibroblast	Camel(Camelus Bacterianus)
25	IBRC C10290	CaBa19	Skin Fibroblast	Camel(Camelus Bacterianus)
26	IBRC C10291	CaBa20	Skin Fibroblast	Camel(Camelus Bacterianus)
27	IBRC C10292	CaBa21	Skin Fibroblast	Camel(Camelus Bacterianus)
28	IBRC C10293	CaBa22	Skin Fibroblast	Camel(Camelus Bacterianus)
29	IBRC C10297	CaBa23	Skin Fibroblast	Camel(Camelus Bacterianus)
30	IBRC C10298	CaBa24	Skin Fibroblast	Camel(Camelus Bacterianus)
31	IBRC C10090	CHI02	Embryonic Fibroblast	Chicken
32	IBRC C10091	CHI03	Embryonic Fibroblast	Chicken
33	IBRC C10092	CHI04	Embryonic Fibroblast	Chicken
34	IBRC C10093	CHI01	Embryonic Fibroblast	Chicken
35	IBRC C10136	CHO-K1	Ovary Fibroblastoid Cell	Chinese Hamster
36	IBRC C10004	DoSa01	Skin Fibroblast	Dog(Sangsari)
37	IBRC C10005	DoSa02	Skin Fibroblast	Dog(Sangsari)
38	IBRC C10008	DoSa04	Skin Fibroblast	Dog(Sangsari)
39	IBRC C10009	DoSa05	Skin Fibroblast	Dog(Sangsari)
40	IBRC C10006	DoSa03	Skin Fibroblast	Dog(Sarabi)
41	IBRC C10010	DoSa06	Skin Fibroblast	Dog(Sarabi)

42	IBRC C10011	DoSa07	Skin Fibroblast	Dog(Sarabi)
43	IBRC C10032	Go01	Skin Fibroblast	Goat
44	IBRC C10158	CaHo-01	Skin Fibroblast	Horse(Caspian)
45	IBRC C10159	CaHo-02	Skin Fibroblast	Horse(Caspian)
46	IBRC C10160	CaHo-03	Skin Fibroblast	Horse(Caspian)
47	IBRC C10161	CaHo-04	Skin Fibroblast	Horse(Caspian)
48	IBRC C10196	CaHo-05	Skin Fibroblast	Horse(Caspian)
49	IBRC C10197	CaHo-06	Skin Fibroblast	Horse(Caspian)
50	IBRC C10200	CaHo-07	Skin Fibroblast	Horse(Caspian)
51	IBRC C10201	CaHo-08	Skin Fibroblast	Horse(Caspian)
52	IBRC C10202	CaHo-09	Skin Fibroblast	Horse(Caspian)
53	IBRC C10203	CaHo-10	Skin Fibroblast	Horse(Caspian)
54	IBRC C10204	CaHo-11	Skin Fibroblast	Horse(Caspian)
55	IBRC C10205	CaHo-12	Skin Fibroblast	Horse(Caspian)
56	IBRC C10206	CaHo13	Skin Fibroblast	Horse(Caspian)
57	IBRC C10207	CaHo14	Skin Fibroblast	Horse(Caspian)
58	IBRC C10208	CaHo-15	Skin Fibroblast	Horse(Caspian)
59	IBRC C10209	CaHo-16	Skin Fibroblast	Horse(Caspian)
60	IBRC C10210	CaHo-17	Skin Fibroblast	Horse(Caspian)
61	IBRC C10211	CaHo-18	Skin Fibroblast	Horse(Caspian)
62	IBRC C10212	CaHo-19	Skin Fibroblast	Horse(Caspian)
63	IBRC C10214	CaHo-21	Skin Fibroblast	Horse(Caspian)
64	IBRC C10215	CaHo-22	Skin Fibroblast	Horse(Caspian)
65	IBRC C10216	CaHo-23	Skin Fibroblast	Horse(Caspian)
66	IBRC C10217	CaHo24	Skin Fibroblast	Horse(Caspian)
67	IBRC C10218	CaHo25	Skin Fibroblast	Horse(Caspian)
68	IBRC C10219	CaHo26	Skin Fibroblast	Horse(Caspian)
69	IBRC C10232	CaHo28	Skin Fibroblast	Horse(Caspian)
70	IBRC C10233	CaHo29	Skin Fibroblast	Horse(Caspian)

71	IBRC C10234	CaHo30	Skin Fibroblast	Horse(Caspian)
72	IBRC C10257	CaHo31	Skin Fibroblast	Horse(Caspian)
73	IBRC C10258	CaHo32	Skin Fibroblast	Horse(Caspian)
74	IBRC C10259	CaHo33	Skin Fibroblast	Horse(Caspian)
75	IBRC C10260	CaHo34	Skin Fibroblast	Horse(Caspian)
76	IBRC C10261	CaHo35	Skin Fibroblast	Horse(Caspian)
77	IBRC C10262	CaHo36	Skin Fibroblast	Horse(Caspian)
78	IBRC C10263	CaHo37	Skin Fibroblast	Horse(Caspian)
79	IBRC C10264	CaHo38	Skin Fibroblast	Horse(Caspian)
80	IBRC C10273	CaHo39	Skin Fibroblast	Horse(Caspian)
81	IBRC C10275	CaHo41	Skin Fibroblast	Horse(Caspian)
82	IBRC C10276	CaHo42	Skin Fibroblast	Horse(Caspian)
83	IBRC C10294	CaHo43	Skin Fibroblast	Horse(Caspian)
84	IBRC C10295	CaHo44	Skin Fibroblast	Horse(Caspian)
85	IBRC C10296	CaHo45	Skin Fibroblast	Horse(Caspian)
86	IBRC C10299	CaHo46	Skin Fibroblast	Horse(Caspian)
87	IBRC C10300	CaHo47	Skin Fibroblast	Horse(Caspian)
88	IBRC C10301	CaHo48	Skin Fibroblast	Horse(Caspian)
89	IBRC C10302	CaHo49	Skin Fibroblast	Horse(Caspian)
90	IBRC C10303	CaHo50	Skin Fibroblast	Horse(Caspian)
91	IBRC C10304	CaHo51	Skin Fibroblast	Horse(Caspian)
92	IBRC C10305	CaHo52	Skin Fibroblast	Horse(Caspian)
93	IBRC C10306	CaHo53	Skin Fibroblast	Horse(Caspian)
94	IBRC C10307	CaHo54	Skin Fibroblast	Horse(Caspian)
95	IBRC C10308	CaHo55	Skin Fibroblast	Horse(Caspian)
96	IBRC C10127	SF9	Ovary Cell Line	Insect
97	IBRC C10068	Mo06	Skin Fibroblast	Mouse
98	IBRC C10070	Mo03	Skin Fibroblast	Mouse

99	IBRC C10072	Raw 264.7	Peritoneal Monocyte Macrophage	Mouse
100	IBRC C10073	Mo09	Skin Fibroblast	Mouse
101	IBRC C10075	WEHI-3B	Peripheral Blood Myelomonocytic leukemia	Mouse
102	IBRC C10083	NFS-60	Myelocytic Leukemia	Mouse
103	IBRC C10084	WEHI-3B	Blood Myelomonocytic Leukemia	Mouse
104	IBRC C10100	NIH3T3	Embryonic Fibroblast Cell Line	Mouse
105	IBRC C10106	Sp2/0-Ag14	Mouse B Cell Hybridoma	Mouse
106	IBRC C10109	BETA-TC-3	Pancreas Insulinoma (Beta-Tumor)	Mouse
107	IBRC C10152	3T3L1	Embryo	Mouse
108	IBRC C10167	MC4-L2	Mammary Adenocarcinoma	Mouse
109	IBRC C10213	P19	Mouse embryonal carcinoma	Mouse
110	IBRC C10315	MEFs-1	Foetal Fibroblast	Mouse
111	IBRC C10138	MPC-11	Myeloma Cell line	Mouse (BALB/C)
112	IBRC C10102	L-929	Normal Subcutaneous Areolar and Adipose Connective Tissue Fibroblast	Mouse(strain C3H/An)
113	IBRC C10069	Ra 01	Skin Fibroblast	Rabbit
114	IBRC C10074	RWE01	Tail Skin Fibroblast	Rat
115	IBRC C10076	RWT01	Ear Skin Fibroblast	Rat
116	IBRC C10077	RWT02	Ear Skin Fibroblast	Rat
117	IBRC C10078	RWE02	Tail Skin Fibroblast	Rat
118	IBRC C10101	RIN-5F	Pancreatic Beta Cell Tumor	Rat

119	IBRC C10163	RBM-1	Bone Marrow Cells	Rat
120	IBRC C10164	RBM-2	Bone Marrow Cells	Rat
121	IBRC C10165	RBM-3	Bone Marrow Cells	Rat
122	IBRC C10166	RBM-4	Bone Marrow Cells	Rat
123	IBRC C10030	Sh01	Skin Fibroblast	Sheep
124	IBRC C10051	ShZ07	Skin Fibroblast	Sheep(Zandi)
125	IBRC C10052	ShZ01	Skin Fibroblast	Sheep(Zandi)
126	IBRC C10053	ShZ06	Skin Fibroblast	Sheep(Zandi)
127	IBRC C10054	ShZ05	Skin Fibroblast	Sheep(Zandi)
128	IBRC C10055	ShZ09	Skin Fibroblast	Sheep(Zandi)
129	IBRC C10056	ShZ04	Skin Fibroblast	Sheep(Zandi)
130	IBRC C10057	ShZ10	Skin Fibroblast	Sheep(Zandi)
131	IBRC C10058	ShZ02	Skin Fibroblast	Sheep(Zandi)
132	IBRC C10059	ShZ03	Skin Fibroblast	Sheep(Zandi)
133	IBRC C10061	ShZ08	Skin Fibroblast	Sheep(Zandi)
134	IBRC C10014	ShB02	Skin Fibroblast	Sheep(Baluchi)
135	IBRC C10015	ShB03	Skin Fibroblast	Sheep(Baluchi)
136	IBRC C10016	ShB04	Skin Fibroblast	Sheep(Baluchi)
137	IBRC C10017	ShB05	Skin Fibroblast	Sheep(Baluchi)
138	IBRC C10019	ShLb01	Skin Fibroblast	Sheep(Lori Bakhtiari)
139	IBRC C10020	ShLb02	Skin Fibroblast	Sheep(Lori Bakhtiari)
140	IBRC C10021	ShLb03	Skin Fibroblast	Sheep(Lori Bakhtiari)
141	IBRC C10022	ShLb04	Skin Fibroblast	Sheep(Lori Bakhtiari)
142	IBRC C10023	ShLb05	Skin Fibroblast	Sheep(Lori Bakhtiari)
143	IBRC C10024	ShLb06	Skin Fibroblast	Sheep(Lori Bakhtiari)
144	IBRC C10025	ShLb07	Skin Fibroblast	Sheep(Lori Bakhtiari)
145	IBRC C10026	ShLb08	Skin Fibroblast	Sheep(Lori Bakhtiari)
146	IBRC C10027	ShLb09	Skin Fibroblast	Sheep(Lori Bakhtiari)
147	IBRC C10033	ShM11	Skin Fibroblast	Sheep(Mehrabani)

148	IBRC C10034	ShM14	Skin Fibroblast	Sheep(Mehrabani)
149	IBRC C10035	ShM9	Skin Fibroblast	Sheep(Mehrabani)
150	IBRC C10036	ShM10	Skin Fibroblast	Sheep(Mehrabani)
151	IBRC C10037	ShM5	Skin Fibroblast	Sheep(Mehrabani)
152	IBRC C10038	ShM8	Skin Fibroblast	Sheep(Mehrabani)
153	IBRC C10039	ShM4	Skin Fibroblast	Sheep(Mehrabani)
154	IBRC C10040	ShM1	Skin Fibroblast	Sheep(Mehrabani)
155	IBRC C10041	ShM2	Skin Fibroblast	Sheep(Mehrabani)
156	IBRC C10042	ShM13	Skin Fibroblast	Sheep(Mehrabani)
157	IBRC C10043	ShM3	Skin Fibroblast	Sheep(Mehrabani)
158	IBRC C10044	ShM12	Skin Fibroblast	Sheep(Mehrabani)
159	IBRC C10045	ShM15	Skin Fibroblast	Sheep(Mehrabani)
160	IBRC C10046	ShM6	Skin Fibroblast	Sheep(Mehrabani)
161	IBRC C10047	ShM7	Skin Fibroblast	Sheep(Mehrabani)

General Catalogue of Microorganisms Bank

No.	Strain number	Name
1	IBRC-M 10013	<i>Haloarchaeobius iranensis</i>
2	IBRC-M 10015	<i>Halovenus aranensis</i>
3	IBRC-M 10036	<i>Salinibacter iranicus</i>
4	IBRC-M 10041	<i>Halopenitus persicus</i>
5	IBRC-M 10163	<i>Micromonospora</i> sp.
6	IBRC-M 10164	<i>Streptomyces</i> sp.
7	IBRC-M 10165	<i>Streptomyces</i> sp.
8	IBRC-M 10167	<i>Streptomyces</i> sp.
9	IBRC-M 10168	<i>Streptomyces</i> sp.
10	IBRC-M 10172	<i>Streptomyces</i> sp.
11	IBRC-M 10173	<i>Streptomyces</i> sp.
12	IBRC-M 10195	<i>Streptomyces</i> sp.
13	IBRC-M 10196	<i>Streptomyces</i> sp.
14	IBRC-M 10198	<i>Salinicoccus iranensis</i>
15	IBRC-M 10203	<i>Enterococcus hirae</i>
16	IBRC-M 10204	<i>Bacillus licheniformis</i>
17	IBRC-M 10205	<i>Pseudomonas aeruginosa</i>
18	IBRC-M 10206	<i>Corynebacterium glutamicum</i>
19	IBRC-M 10208	<i>Escherichia coli</i>
20	IBRC-M 10210	<i>Bacillus subtilis</i>
21	IBRC-M 10212	<i>Staphylococcus pasteurii</i>
22	IBRC-M 10214	<i>Halomonas elongata</i>
23	IBRC-M 10215	<i>Halobacillus</i> sp.
24	IBRC-M 10216	<i>Halomonas elongata</i>
25	IBRC-M 10217	<i>Halobacillus halophilus</i>
26	IBRC-M 10218	<i>Salinivibrio proteolyticus</i>
27	IBRC-M 10220	<i>Piscibacillus halophilus</i>

28	IBRC-M 10221	<i>Halobacillus karajensis</i>
29	IBRC-M 10222	<i>Halobacillus litoralis</i>
30	IBRC-M 10225	<i>Salinicoccus roseus</i>
31	IBRC-M 10226	<i>Salinicoccus kunmingensis</i>
32	IBRC-M 10227	<i>Salinicoccus hispanicus</i>
33	IBRC-M 10228	<i>Salinicoccus alkaliphilus</i>
34	IBRC-M 10248	<i>Haloferax volcanii</i>
35	IBRC-M 10249	<i>Halogeometricum borinquense</i>
36	IBRC-M 10250	<i>Halorubrum saccharovororum</i>
37	IBRC-M 10251	<i>Haloterrigena turkmenica</i>
38	IBRC-M 10257	<i>Natrinema pellirubrum</i>
39	IBRC-M 10336	<i>Haloarcula vallismortis</i>
40	IBRC-M 10337	<i>Haloferax mediterranei</i>
41	IBRC-M 10338	<i>Halorubrum lacusprofundi</i>
42	IBRC-M 10339	<i>Halovivax ruber</i>
43	IBRC-M 10340	<i>Salinibacter ruber</i>
44	IBRC-M 10341	<i>Natrialba asiatica</i>
45	IBRC-M 10378	<i>Lechevalieria fradiae</i>
46	IBRC-M 10423	<i>Salinibacter luteus</i>
47	IBRC-M 10429	<i>Alcanivorax dieselolei</i>
48	IBRC-M 10432	<i>Chromohalobactersp.</i>
49	IBRC-M 10433	<i>Halomonas elongata</i>
50	IBRC-M 10434	<i>Halomonas sinaiensis</i>
51	IBRC-M 10435	<i>Halomonas sp.</i>
52	IBRC-M 10436	<i>Alteribacillus persepolensis</i>
53	IBRC-M 10439	<i>Alkalibacillus flavidus</i>
54	IBRC-M 10440	<i>Lentibacillus persicus</i>
55	IBRC-M 10443	<i>Salinicoccus qingdaonensis</i>
56	IBRC-M 10446	<i>Bacillus iranensis</i>
57	IBRC-M 10559	<i>Lechevalieria fradiae</i>

58	IBRC-M 10560	<i>Ornithinibacillus bavariensis</i>
59	IBRC-M 10561	<i>Microbacterium testaceum</i>
60	IBRC-M 10562	<i>Piscibacillus salipiscarius</i>
61	IBRC-M 10563	<i>Virgibacillus halodenitrificans</i>
62	IBRC-M 10564	<i>Halomonas denitrificans</i>
63	IBRC-M 10565	<i>Oceanobacillus kapialis</i>
64	IBRC-M 10567	<i>Oceanobacillus profundus</i>
65	IBRC-M 10589	<i>Bacillus clausii</i>
66	IBRC-M 10590	<i>Bacillus niabensis</i>
67	IBRC-M 10591	<i>Marinilactibacillus piezotolerans</i>
68	IBRC-M 10592	<i>Marinobacter hydrocarbonoclasticus</i>
69	IBRC-M 10593	<i>Pseudomonas pertucinogena</i>
70	IBRC-M 10594	<i>Marinilactibacillus psychrotolerans</i>
71	IBRC-M 10595	<i>Aquisalibacillus elongatus</i>
72	IBRC-M 10596	<i>Bacillus alkalitelluris</i>
73	IBRC-M 10597	<i>Rhodovibrio salinarum</i>
74	IBRC-M 10598	<i>Idiomarina zobellii</i>
75	IBRC-M 10614	<i>Alteribacillus bidgolensis</i>
76	IBRC-M 10625	<i>Bacillus foraminis</i>
77	IBRC-M 10626	<i>Ornithinibacillus contaminans</i>
78	IBRC-M 10627	<i>Salinicoccus qingdaonensis</i>
79	IBRC-M 10629	<i>Saliterribacillus persicus</i>
80	IBRC-M 10631	<i>Streptococcus agalactiae</i>
81	IBRC-M 10633	<i>Listeria ivanovi</i> subsp. <i>ivanovii</i>
82	IBRC-M 10635	<i>Staphylococcus saprophyticus</i>
83	IBRC-M 10636	<i>Staphylococcus saprophyticus</i>
84	IBRC-M 10637	<i>Streptococcus gallolyticus</i> subsp. <i>gallolyticus</i>
85	IBRC-M 10638	<i>Acetobacter aceti</i>
86	IBRC-M 10639	<i>Klebsiella oxytoca</i>

87	IBRC-M 10640	<i>Mycobacterium fortuitum</i> subsp. <i>fortuitu</i>
88	IBRC-M 10644	<i>Xanthomons campestris</i>
89	IBRC-M 10645	<i>Achromobacter</i> sp
90	IBRC-M 10650	<i>Alcaligenes faecalissubsp. faecalis</i>
91	IBRC-M 10651	<i>Staphylococcus simulans</i>
92	IBRC-M 10652	<i>Enterobacter cloacaesubsp. cloacae</i>
93	IBRC-M 10653	<i>Bacillus atrophaeus</i>
94	IBRC-M 10654	<i>Acinetobacter baumannii</i>
95	IBRC-M 10655	<i>Alloactinosynnema album</i>
96	IBRC-M 10657	<i>Virgibacillus koreensis</i>
97	IBRC-M 10658	<i>Pasteurella aerogenes</i>
98	IBRC-M 10659	<i>Nocardia ignorata</i>
99	IBRC-M 10660	<i>Micromonospora chalcea</i>
100	IBRC-M 10661	<i>Nocardia lijiangensis</i>
101	IBRC-M 10663	<i>Bacillus licheniformis</i>
102	IBRC-M 10664	<i>Brevibacillus laterosporus</i>
103	IBRC-M 10665	<i>Achromobacter</i>
104	IBRC-M 10666	<i>Lactobacillus sakei</i> subsp. <i>sakei</i>
105	IBRC-M 10667	<i>Pseudomonas fluorescens</i>
106	IBRC-M 10676	<i>Moraxella osloensis</i>
107	IBRC-M 10678	<i>Streptococcus sanguinis</i>
108	IBRC-M 10679	<i>Staphylococcus warneri</i>
109	IBRC-M 10680	<i>Streptococcus vestibularis</i>
110	IBRC-M 10682	<i>Streptococcus mutans</i>
111	IBRC-M 10697	<i>Bacillus circulans</i>
112	IBRC-M 10699	<i>Rhodococcus equi</i>
113	IBRC-M 10700	<i>Citrobacter koseri</i>
114	IBRC-M 10701	<i>Rhizobium radiobacter</i>
115	IBRC-M 10630	<i>Streptococcus mitis</i>

116	IBRC-M 10656	<i>Natronococcus roseus</i>
117	IBRC-M 10668	<i>Salmonella enterica</i> subsp. <i>Enterica</i> (<i>Salmonella paratyphi-A</i>)
118	IBRC-M 10669	<i>Salmonella enterica</i> subsp. <i>Enterica</i> (<i>Salmonella choleraesuis</i> subsp. <i>Choleraesuis</i>)
119	IBRC-M 10670	<i>Yersinia enterocolitica</i> subsp. <i>enterocolitica</i>
120	IBRC-M 10671	<i>Listeria monocytogenes</i>
121	IBRC-M 10672	<i>Shigella sonnei</i>
122	IBRC-M 10674	<i>Proteus mirabilis</i>
123	IBRC-M 10675	<i>Brevibacillus agri</i>
124	IBRC-M 10677	<i>Streptococcus gallolyticus</i>
125	IBRC-M 10683	<i>Ornithinibacillus halophilus</i>
126	IBRC-M 10684	<i>Corynebacterium pseudodiphtheriticu</i>
127	IBRC-M 10686	<i>Acinetobacter lwoffii</i>
128	IBRC-M 10687	<i>Enterobacter aerogenes</i>
129	IBRC-M 10688	<i>Ornithinibacillus californiensis</i>
130	IBRC-M 10690	<i>Staphylococcus aureus</i> subsp. <i>aureus</i>
131	IBRC-M 10691	<i>Micrococcus luteus</i>
132	IBRC-M 10692	<i>Lactococcus lactis</i> subsp. <i>lactis</i>
133	IBRC-M 10693	<i>Stenotrophomonas maltophilia</i>
134	IBRC-M 1069	<i>Staphylococcus xylosus</i>
135	IBRC-M 10696	<i>Bacillus subtilis</i> subsp. <i>subtilis</i>
136	IBRC-M 10698	<i>Escherichia coli</i>
137	IBR-M 10702	<i>Pseudomonas syringae</i> pv. <i>syringae</i>
138	IBRC-M 10715	<i>Halobacterium salinarum</i>
139	IBRC- 30002	<i>Pseudozyma</i> sp.
140	IBRC-M 30003	<i>Pseudozyma</i> sp.
141	IBRC-M 30004	<i>Saccharomyces cerevisiae</i>
142	IBRC-M 30005	<i>Candida parapsilosis</i>
143	IBRC-M 30069	<i>Saccharomyces cerevisiae</i>

144	IBRC-M 30070	<i>Candida albicans</i>
145	IBRC-M 30071	<i>Candida guilliermondii</i> <i>Pichia guilliermondii</i>
146	IBRC-M 30072	<i>Candida utilis</i> <i>Pichia jadinii</i>
147	IBRC-M 10673	<i>Burkholderia cepacia</i> (<i>Pseudomonas cepacia</i>)
148	IBRC-M 10681	<i>Streptococcus parasanguinis</i>
149	IBRC-M 10685	<i>Moraxella</i> subgen. <i>branhamella</i> <i>catarrhalis</i>
150	IBRC-M 10694	<i>Staphylococcus epidermidis</i>
151	IBRC-M 10705	<i>Serratia marcescens</i> subsp. <i>marcescens</i>
152	IBRC-M 10706	<i>Vibrio parahaemolyticus</i>
153	IBRC-M 10707	<i>Salmonella enterica</i> subsp. <i>enterica</i>
154	IBRC-M 10708	<i>Escherichia coli</i>
155	IBRC-M 10709	<i>Pseudomonas aeruginosa</i>
156	IBRC-M 10739	<i>Leuconostoc mesenteroides</i> subsp. <i>mesenteroides</i>
157	IBRC-M 10740	<i>Enterococcus faecalis</i>
158	IBRC-M 10710	<i>Bordetella parapertussis</i>
159	IBRC-M 10723	<i>Mycobacterium gordonae</i>
160	IBRC-M 10724	<i>Mycobacterium avium</i> subsp. <i>avium</i>
161	IBRC-M 10727	<i>Vibrio alginolyticus</i>
162	IBRC-M 10728	<i>Neisseria subflava</i>
163	IBRC-M 10730	<i>Lactobacillus delbrueckii</i> subsp. <i>bulgaricus</i>
164	IBRC-M 10733	<i>Alteromonas macleodii</i>
165	IBRC-M 10734	<i>Halomonas anticariensis</i>
166	IBRC-M 10735	<i>Virgibacillus byunsanensis</i>
167	IBRC-M 10744	<i>Achromobacter marplatensis</i>
168	IBRC-M 10566	<i>Halomonas ventosae</i>
169	IBRCM 10689	<i>Bacillus herbersteinensis</i>
170	IBRC-M 10712	<i>Enterococcus casseliflavus</i>
171	IBRC-M 10716	<i>Morganella morganii</i> subsp. <i>morganii</i>
172	IBRC-M 10719	<i>Klebsiella pneumoniae</i> subsp. <i>pneumoniae</i>
173	IBRC-M 10721	<i>Neisseria sicca</i>

174	IBRC-M 10737	<i>Paenibacillus macuariensis</i> subsp. <i>macquariensis</i>
175	IBRC-M 10745	<i>Kytococcus sedentarius</i>
176	IBRC-M 10753	<i>Enterococcus durans</i>
177	IBRC-M 10018	<i>Limimonas halophila</i>
178	IBRC-M 10418	<i>Halopenitus malekzadehii</i>
179	IBRC-M 10704	<i>Salmonella enterica</i> subsp. <i>enterica</i>
180	IBRC-M 10711	<i>Lactobacillus casei</i>
181	IBRC-M 10718	<i>Edwardsiella tarda</i>
182	IBRC-M 10732	<i>Bacillus pumilus</i>
183	IBRC-M 10736	<i>Bacillus halodurans</i>
184	IBRC-M 10743	<i>Thalassobacillus cyri</i>
185	IBRC-M 10746	<i>Shigella flexneri</i>
186	IBRC-M 10749	<i>Erwinia amylovora</i>
187	IBRC-M 10750	<i>Erwinia amylovora</i>
188	IBRC-M 10751	<i>Erwinia amylovora</i>
189	IBRC-M 10752	<i>Pseudomonas fluorescens</i>
190	IBRC-M 30029	<i>Aspergillus</i> section <i>Flavi</i> sp.
191	IBRC-M 30044	<i>Penicillium</i> sp.
192	IBRC-M 30028	<i>Paecilomyces</i> sp.
193	IBRC-M 30041	<i>Aspergillus</i> section <i>Terrei</i> sp.
194	IBRC-M 30043	<i>Aspergillus</i> section <i>Terrei</i> sp.
195	IBRC-M 30060	<i>Talaromyces stipitatus</i>
196	IBRC-M 30022	<i>Aspergillus persii</i>
197	IBRC-M 30048	<i>Aspergillus fumigatus</i>
198	IBRC-M 30040	<i>Aspergillus fumigatus</i>
199	IBRC-M 30034	<i>Aspergillus</i> section <i>Terrei</i> sp.
200	IBRC-M 30035	<i>Aspergillus</i> section <i>Terrei</i> sp.
201	IBRC-M 30039	<i>Penicillium</i> sp.
202	IBRC-M 30046	<i>Emericellopsis</i> sp.
203	IBRC-M 30053	<i>Aspergillus</i> sp.

204	IBRC-M 30061	<i>Cladosporium</i> sp.
205	IBRC-M 30036	<i>Aspergillus</i> sp.
206	IBRC-M 30030	<i>Penicillium</i> sp.
207	IBRC-M 30054	<i>Aspergillus</i> sp.
208	IBRC-M 30037	<i>Aspergillus</i> sp.
209	IBRC-M 30033	<i>Aspergillus fumigatus</i>
210	IBRC-M 30047	<i>Pyrenochaetopsis</i> sp.
211	IBRC-M 30059	<i>Trichoderma harzianum</i>
212	IBRC-M 30051	<i>Pyrenochaetopsis</i> sp.
213	IBRC-M 30031	<i>Penicillium</i> sp.
214	IBRC-M 30038	<i>Aspergillus</i> sp.
215	IBRC-M 30056	<i>Cladosporium</i> sp.
216	IBRC-M 30057	<i>Aspergillus</i> sp.
217	IBRC-M 30052	<i>Aspergillus</i> sp.
218	IBRC-M 30058	<i>Penicillium</i> sp.
219	IBRC-M 30023	<i>Penicillium chrysogenum</i>
220	IBRC-M 30042	<i>Emericellopsis</i> sp.
221	IBRC-M 30067	<i>Fusarium oxysporum</i>
222	IBRC-M 30045	<i>Emericellopsis</i> sp.
223	IBRC-M 30014	<i>Candida</i> sp.
224	IBRC-M 30013	<i>Candida</i> sp.
225	IBRC-M 30017	<i>Cryptococcus</i> sp.
226	IBRC-M 30006	<i>Rhodotorula</i> sp.
227	IBRC-M 30010	<i>Geotrichum</i> sp.
228	IBRC-M 30011	<i>Geotrichum</i> sp.
229	IBRC-M 30015	<i>Candida</i> sp.
230	IBRC-M 30063	<i>Geotrichum</i> sp.
231	IBRC-M 30009	<i>Trichosporon</i> sp.
232	IBRC-M 30016	<i>Cryptococcus</i> sp.
233	IBRC-M 30012	<i>Issatchenkia</i> sp.

234	IBRC-M 30021	<i>Arthrographis</i> sp.
235	IBRC-M 30008	<i>Quambalaria</i> sp.
236	IBRC-M 30020	<i>Exophiala</i> sp.
237	IBRC-M 30019	<i>Exophiala</i> sp.
238	IBRC-M 30007	<i>Trichosporon</i> sp.
239	IBRC-M 30018	<i>Cryptococcus</i> sp.
240	IBRC-M 30062	<i>Aureobasidium</i> sp.
241	IBRC-M 3001	<i>Haloarcula</i> sp.
242	IBRC-M 3002	<i>Halostagnicola</i> sp.
243	IBRC-M 3005	<i>Halogeometricum</i> sp.
244	IBRC-M 3007	<i>Haloarcula</i> sp.
245	IBRC-M 4001	<i>Salinivibrio</i> sp.
246	IBRC-M 4002	<i>Halomonas</i> sp.
247	IBRC-M 4003	<i>Idiomarina</i> sp.
248	IBRC-M 4004	<i>Salinivibrio</i> sp.
249	IBRC-M 4006	<i>Idiomarina</i> sp.
250	IBRC-M 4007	<i>Halomonas</i> sp.
251	IBRC-M 4008	<i>Halomonas</i> sp.
252	IBRC-M 4011	<i>Halomonas</i> sp.

Native Microorganisms of Iran

No.	Strain number	Name
1	IBRC-M 10013	<i>Haloarchaeobius iranensis</i>
2	IBRC-M 10015	<i>Halovenus aranensis</i>
3	IBRC-M 10018	<i>Limimonas halophila</i>
4	IBRC-M 10036	<i>Salinibacter iranicus</i>
5	IBRC-M 10041	<i>Halopenitus persicus</i>
6	IBRC-M 10078	<i>Bacillus salsus</i>
7	IBRC-M 10115	<i>Bacillus persicus</i>
8	IBRC-M 10198	<i>Salinicoccus iranensis</i>
9	IBRC-M 10218	<i>Salinivibrio proteolyticus</i>
10	IBRC-M 10220	<i>Piscibacillus halophilus</i>
11	IBRC-M 10221	<i>Halobacillus karajensis</i>
12	IBRC-M 10418	<i>Halopenitus malekzadehii</i>
13	IBRC-M 10423	<i>Salinibacter luteus</i>
14	IBRC-M 10436	<i>Alteribacillus persepolensis</i>
15	IBRC-M 10440	<i>Lentibacillus persicus</i>
16	IBRC-M 10446	<i>Bacillus iranensis</i>
17	IBRC-M 10614	<i>Alteribacillus bidgolensis</i>
18	IBRC-M 10629	<i>Saliterribacillus persicus</i>
19	IBRC-M 10683	<i>Ornithinibacillus halophilus</i>
20	IBRC-M 10743	<i>Thalassobacillus cyri</i>
21	IBRC-M 10212	<i>Staphylococcus pasteurii</i>
22	IBRC-M 10214	<i>Halomonas elongata</i>
23	IBRC-M 10215	<i>Halobacillus</i> sp.
24	IBRC-M 10216	<i>Halomonas elongata</i>
25	IBRC-M 10217	<i>Halobacillus halophilus</i>

Applicable Microorganisms in Biotechnology

Microorganisms with decolorization capabilities

No.	Strain number	Name
1	IBRC-M 10199	<i>Halomonas</i> sp.
2	IBRC-M 10200	<i>Halomonas</i> sp.

Microorganisms able to reduce heavy metals concentrations

No.	Strain number	Name
1	IBRC-M 10198	<i>Salinicoccus iranensis</i>
2	IBRC-M 10214	<i>Halomonas elongata</i>
3	IBRC-M 10224	<i>Nesterenkonia</i> sp.

Microorganisms with biodegradation capabilities

No.	Strain number	Name
1	IBRC-M 10429	<i>Alcanivorax dieselolei</i>
2	IBRC-M 10432	<i>Chromohalobacter</i> sp.
3	IBRC-M 10434	<i>Halomonas sinaiensis</i>
4	IBRC-M 10435	<i>Halomonas</i> sp.

Proteolytic Microorganisms

No.	Strain number	Name
1	IBRC-M 10095	<i>Bacillus</i> sp.
2	IBRC-M 10218	<i>Salinivibrio proteolyticus</i>
3	IBRC-M 10220	<i>Piscibacillus halophilus</i>
4	IBRC-M 10221	<i>Halobacillus karajensis</i>
5	IBRC-M 10403	<i>Alloactinosynnema</i> sp.
6	IBRC-M 10436	<i>Alteribacillus persepolensis</i>
7	IBRC-M 10440	<i>Lentibacillus persicus</i>
8	IBRC-M 10614	<i>Alteribacillus bidgolensis</i>
9	IBRC-M 10743	<i>Thalassobacillus cyri</i>

Amylolytic Microorganisms

No.	Strain number	Name
1	IBRC-M 10095	<i>Bacillus</i> sp.
2	IBRC-M 10163	<i>Micromonospora</i> sp.
3	IBRC-M 10164	<i>Streptomyces</i> sp.
4	IBRC-M 10165	<i>Streptomyces</i> sp.
5	IBRC-M 10168	<i>Streptomyces</i> sp.
6	IBRC-M 10172	<i>Streptomyces</i> sp.
7	IBRC-M 10173	<i>Streptomyces</i> sp.
8	IBRC-M 10218	<i>Salinivibrio proteolyticus</i>
9	IBRC-M 10221	<i>Halobacillus karajensis</i>
10	IBRC-M 10223	<i>Nesterenkonia</i> sp.
11	IBRC-M 10622	<i>Halorubrum</i> sp.

Lipolytic Microorganisms

No.	Strain number	Name
1	IBRC-M 10115	<i>Bacillus persicus</i>
2	IBRC-M 10165	<i>Streptomyces</i> sp.
3	IBRC-M 10168	<i>Streptomyces</i> sp.
4	IBRC-M 10172	<i>Streptomyces</i> sp.

Pectinolytic Microorganisms

No.	Strain number	Name
1	IBRC-M 10163	<i>Micromonospora</i> sp.
2	IBRC-M 10167	<i>Streptomyces</i> sp.
3	IBRC-M 10172	<i>Streptomyces</i> sp.

Pullulanase producing Microorganisms

No.	Strain number	Name
1	IBRC-M 10622	<i>Halorubrum</i> sp.

Amino acid producing Microorganisms

No.	Strain number	Name
1	IBRC-M 10206	<i>Corynebacterium glutamicum</i>

Carotenoid producing Microorganisms

No.	Strain number	Name
1	IBRC-M 10207	<i>Kocuria</i> sp.

bacteriorhodopsin producing Microorganisms

No.	Strain number	Name
1	IBRC-M 10715	<i>Halobacterium salinarum</i>

Microorganisms with anti-aging effects

No.	Strain number	Name
1	IBRC-M 10018	<i>Limimonas halophila</i>

Lactic acid and Probiotic Bacteria

No.	Strain number	Name
1	IBRC-M 10666	<i>Lactobacillus sakei subsp. sakei</i>
2	IBRC-M 10692	<i>Lactococcus lactis subsp. lactis</i>
3	IBRC-M 10711	<i>Lactobacillus casei</i>
4	IBRC-M 10730	<i>Lactobacillus delbrueckii subsp. bulgaricus</i>
5	IBRC-M 10754	<i>Lactobacillus rhamnosus</i>
6	IBRC-M 10755	<i>Lactobacillus reuteri</i>

Seeds list

Family	Genus	Species	Total
Aceraceae	<i>Acer</i>	<i>Acer cappodisicum</i>	1
	<i>Acer</i>	<i>Acer sp.</i>	1
	-	-	1
Alliaceae	<i>Allium</i>	<i>Allium hirtifolium</i>	22
	<i>Allium</i>	<i>Allium paradoxum</i>	2
	<i>Allium</i>	<i>Allium shelkownikovii</i>	1
	<i>Allium</i>	<i>Allium sp.</i>	71
	-	-	1
Amaranthaceae	-	-	1
	<i>Celosia</i>	<i>Celosia cristata</i>	2
	<i>Gomphrena</i>	<i>Gomphrena globosa</i>	1
	<i>Ixiolirion</i>	<i>Ixiolirion sp.</i>	1
Anacardiaceae	<i>Pistacia</i>	<i>Pistacia atlantica</i>	2
	<i>Pistacia</i>	<i>Pistacia sp.</i>	3
Apiaceae	-	-	1
	<i>Anethum</i>	<i>Anethum graveolens</i>	1
	<i>Astrodaucus</i>	<i>Astrodaucus orientalis</i>	1
	<i>Bupleurum</i>	<i>Bupleurum sp.</i>	2
	<i>Chaerophyllum</i>	<i>Chaerophyllum macropodum</i>	1
	<i>Chaerophyllum</i>	<i>Chaerophyllum sp.</i>	1
	<i>Conium</i>	<i>Conium maculatum</i>	1
	<i>Conium</i>	<i>Conium sp.</i>	1
	<i>Coriandrum</i>	<i>Coriandrum sativum</i>	2
	<i>Cuminum</i>	<i>Cuminum cyminum</i>	1
	<i>Cuminum</i>	<i>Cuminum cyminum</i>	1

	<i>Cuminum</i>	<i>Cuminum spp.</i>	19
	<i>Cuminum</i>	<i>Cuminum sp.</i>	1
	<i>Daucus</i>	<i>Daucus sp.</i>	1
	<i>Daucus</i>	<i>Daucus carota</i>	1
	<i>Diplotaenia</i>	<i>Diplotaenia cachrydifolia</i>	1
	<i>Dorema</i>	<i>Dorema aucheri</i>	1
	<i>Ducrosia</i>	<i>Ducrosia sp.</i>	3
	<i>Echinophora</i>	<i>Echinophora orientalis</i>	1
	<i>Echinophora</i>	<i>Echinophora platyloba</i>	3
	<i>Echinophora</i>	<i>Echinophora sibthorpiana</i>	1
Apiaceae	<i>Echinophora</i>	<i>Echinophora sp.</i>	2
	<i>Eriocycla</i>	<i>Eriocycla oliveriana</i>	1
	<i>Ferula</i>	<i>Ferula gomosa</i>	1
	<i>Ferula</i>	<i>Ferula persica</i>	2
	<i>Ferula</i>	<i>Ferula angulata</i>	1
	<i>Ferula</i>	<i>Ferula assafoetida</i>	16
	<i>Ferula</i>	<i>Ferula sp.</i>	24
	<i>Ferula</i>	<i>Ferula spp.</i>	5
	<i>Ferulago</i>	<i>Ferulago angulata</i>	1
	<i>Ferulago</i>	<i>Ferulago contracta</i>	1
	<i>Foeniculum</i>	<i>Foeniculum vulgare</i>	2
	<i>Foeniculum</i>	<i>Foeniculum vulgare</i>	2
	<i>Grammosciadium</i>	<i>Grammosciadium platycarpum</i>	1
	<i>Grammosciadium</i>	<i>Grammosciadium sp.</i>	1
	<i>Heptaptera</i>	<i>Heptaptera anisoptera</i>	1
	<i>Heracelium</i>	<i>Heracelium sp.</i>	1
	<i>Heracleum</i>	<i>Heracleum persicum</i>	1
	<i>Hippomarathrum</i>	<i>Hippomarathrum sp.</i>	1
	<i>Lomatopodium</i>	<i>Lomatopodium staurophyllum</i>	1

	<i>Malabaila</i>	<i>Malabaila secacula</i>	1
	<i>Malabaila</i>	<i>Malabaila sp.</i>	2
	<i>Petroselinum</i>	<i>Petroselinum crispum</i>	2
	<i>Pimpinella</i>	<i>Pimpinella anisum</i>	1
	<i>Prangos</i>	<i>Prangos vloptera</i>	1
	<i>Prangos</i>	<i>Prangos uloptera</i>	1
	<i>Pycnocycla</i>	<i>Pycnocycla sp.</i>	1
	<i>Pycnocycla</i>	<i>Pycnocycla spinosa</i>	2
	<i>Scandix</i>	<i>Scandix sp.</i>	2
	<i>Trachyspermum</i>	<i>Trachyspermum capticum</i>	1
	<i>Zosimia</i>	<i>Zosimia sp.</i>	3
Apiaceae	-	-	12
Apocynaceae	<i>Vinca</i>	<i>Vinca sp.</i>	1
	<i>Vinca</i>	<i>Vinca herbacea</i>	1
Aquifoliaceae	<i>Ilex</i>	<i>Ilex sp.</i>	1
	<i>Ilex</i>	<i>Ilex spinigera</i>	1
Araceae	<i>Arum</i>	<i>Arum elongatum</i>	1
	<i>Arum</i>	<i>Arum sp.</i>	1
	<i>Biarum</i>	<i>Biarum sp.</i>	1
Aristolochiaceae	<i>Aristolochia</i>	<i>Aristolochia hircana</i>	1
	<i>Aristolochia</i>	<i>Aristolochia sp.</i>	1
Asparagaceae	<i>Asparagus</i>	<i>Asparagus sp.</i>	1
Asphodelaceae	<i>Eremorus</i>	<i>Eremorus sp.</i>	4
	<i>Kniphofia</i>	<i>Kniphofia sp.</i>	1
Aspleniaceae	<i>Phyllitis</i>	<i>Phyllitis sp.</i>	1
Asteraceae	-	-	3
Asteraceae	<i>Achillea</i>	<i>Achillea millefolium</i>	1
	<i>Achillea</i>	<i>Achillea sp.</i>	25
	<i>Achillea</i>	<i>Achillea spp.</i>	2
	<i>Achillea</i>	<i>Achillea tenuifolia</i>	2

	<i>Achillea</i>	<i>Achillea wilhelmsii</i>	1
	<i>Ageratum</i>	<i>Ageratum sp.</i>	1
	<i>Anthemis</i>	<i>Anthemis atropatana</i>	1
	<i>Anthemis</i>	<i>Anthemis haussknechtii</i>	1
	<i>Anthemis</i>	<i>Anthemis sp.</i>	8
	<i>Anthemis</i>	<i>Anthemis tinctoria</i>	1
	<i>Arctium</i>	<i>Arctium sp.</i>	1
	<i>Artemisia</i>	<i>Artemisia absinthium</i>	29
	<i>Artemisia</i>	<i>Artemisia annua</i>	130
	<i>Artemisia</i>	<i>Artemisia armeniaca</i>	3
	<i>Artemisia</i>	<i>Artemisia aucheri</i>	42
	<i>Artemisia</i>	<i>Artemisia austriaca</i>	21
	<i>Artemisia</i>	<i>Artemisia campestris</i>	4
	<i>Artemisia</i>	<i>Artemisia chamaemelifolia</i>	8
	<i>Artemisia</i>	<i>Artemisia ciniformis</i>	19
	<i>Artemisia</i>	<i>Artemisia deserti</i>	7
	<i>Artemisia</i>	<i>Artemisia diffusa</i>	28
	<i>Artemisia</i>	<i>Artemisia dracunculus</i>	1
	<i>Artemisia</i>	<i>Artemisia fragrans</i>	45
	<i>Artemisia</i>	<i>Artemisia gypsacea</i>	2
	<i>Artemisia</i>	<i>Artemisia haussknechtii</i>	5
	<i>Artemisia</i>	<i>Artemisia incana</i>	19
	<i>Artemisia</i>	<i>Artemisia khorassanica</i>	33
	<i>Artemisia</i>	<i>Artemisia kopetdaghensis</i>	26
	<i>Artemisia</i>	<i>Artemisia marschalliana</i>	13
	<i>Artemisia</i>	<i>Artemisia melanolepis</i>	4
	<i>Artemisia</i>	<i>Artemisia oliveriana</i>	30
	<i>Artemisia</i>	<i>Artemisia persica</i>	3
	<i>Artemisia</i>	<i>Artemisia quettensis</i>	2
	<i>Artemisia</i>	<i>Artemisia santolina</i>	3

	<i>Artemisia</i>	<i>Artemisia scoparia</i>	97
	<i>Artemisia</i>	<i>Artemisia sieberi</i>	58
	<i>Artemisia</i>	<i>Artemisia sp.</i>	9
	<i>Artemisia</i>	<i>Artemisia splendens</i>	5
	<i>Artemisia</i>	<i>Artemisia spicigera</i>	77
	<i>Artemisia</i>	<i>Artemisia splendens</i>	1
	<i>Artemisia</i>	<i>Artemisia spp.</i>	12
	<i>Artemisia</i>	<i>Artemisia tournefortiana</i>	29
	<i>Artemisia</i>	<i>Artemisia tschernieviana</i>	2
	<i>Artemisia</i>	<i>Artemisia turanica</i>	7
	<i>Artemisia</i>	<i>Artemisia turcomanica</i>	36
	<i>Artemisia</i>	<i>Artemisia vulgaris</i>	31
	<i>Aster</i>	<i>Aster sp.</i>	1
	<i>Bellis</i>	<i>Bellis perennis</i>	1
Asteraceae	<i>Calendula</i>	<i>Calendula officinalis</i>	1
	<i>Calendula</i>	<i>Calendula sp.</i>	2
	<i>Carthamus</i>	<i>Carthamus tinctorius</i>	18
	<i>Centaurea</i>	<i>Centaurea behen</i>	1
	<i>Centaurea</i>	<i>Centaurea sp.</i>	5
	<i>Chrysanthemum</i>	<i>Chrysanthemum sp.</i>	1
	<i>Cichorium</i>	<i>Cichorium sp.</i>	2
	<i>Cichorium</i>	<i>Cichorium intybus</i>	3
	<i>Cineraria</i>	<i>Cineraria maritima</i>	1
	<i>Cirsium</i>	<i>Cirsium sp.</i>	1
	<i>Conysa</i>	<i>Conysa sp.</i>	1
	<i>Coreopsis</i>	<i>Coreopsis sp.</i>	1
	<i>Cornus</i>	<i>Cornus sp.</i>	1
	<i>Crepis</i>	<i>Crepis sp.</i>	1
	<i>Cusmus</i>	<i>Cusmus bipinnatus</i>	1
	<i>Cynara</i>	<i>Cynara scolymus</i>	1

	<i>Echinops</i>	<i>Echinops sp.</i>	2
	<i>Gaillardia</i>	<i>Gaillardia grandiflora</i>	1
	<i>Gazania</i>	<i>Gazania × splendens</i>	1
	<i>Gundelia</i>	<i>Gundelia sp.</i>	1
	<i>Helianthus</i>	<i>Helianthus annuus</i>	47
	<i>Helianthus</i>	<i>Helianthus sp.</i>	1
	<i>Helichrysum</i>	<i>Helichrysum sp.</i>	8
	<i>Hertia</i>	<i>Hertia angustifolia</i>	2
	<i>Hertia</i>	<i>Hertia intermedia</i>	2
	<i>Lactuca</i>	<i>Lactuca sativa</i>	2
	<i>Lactuca</i>	<i>Lactuca sp.</i>	1
	<i>Leucanthemum</i>	<i>Leucanthemum sp.</i>	1
	<i>Matricaria</i>	<i>Matricaria sp.</i>	4
	<i>Pulicaria</i>	<i>Pulicaria gnaphalodes</i>	1
	<i>Rudbeckia</i>	<i>Rudbeckia fulgida</i>	1
	<i>Senecio</i>	<i>Senecio sp.</i>	3
	<i>Silybum</i>	<i>Silybum marianum</i>	3
	<i>Solidago</i>	<i>Solidago sp.</i>	1
	<i>Tagetes</i>	<i>Tagetes patula</i>	1
	<i>Tanacetum</i>	<i>Tanacetum polycephalum</i>	1
	<i>Tanacetum</i>	<i>Tanacetum sp.</i>	11
	<i>Tanacetum</i>	<i>Tanacetum spp.</i>	7
	<i>Tragopogon</i>	<i>Tragopogon sp.</i>	2
	<i>Xeranthemum</i>	<i>Xeranthemum squarrosum</i>	1
	<i>Zinnia</i>	<i>Zinnia elegans</i>	1
	-	-	8
	<i>Arctium</i>	<i>Arctium sp.</i>	1
Asteraceae	-	-	1
Berberidaceae	<i>Berberis</i>	<i>Berberis integrima</i>	1

	<i>Berberis</i>	<i>Berberis orthobotrys</i>	1
	<i>Berberis</i>	<i>Berberis</i> sp.	2
	<i>Bongardia</i>	<i>Bongardia</i> sp.	2
Cupressaceae	<i>juniperus</i>	<i>juniperus communis</i>	1
Berberidaceae	<i>Leontice</i>	<i>Leontice</i> sp.	1
Boraginaceae	<i>Alkanna</i>	<i>Alkanna bracteosa</i>	1
	<i>Anchusa</i>	<i>Anchusa italica</i>	1
	<i>Anchusa</i>	<i>Anchusa</i> sp.	2
	<i>Arnebia</i>	<i>Arnebia</i> sp.	1
	<i>Echium</i>	<i>Echium italicum</i>	1
	<i>Echium</i>	<i>Echium amoenum</i>	1
	<i>Echium</i>	<i>Echium</i> sp.	2
	<i>Heliotropium</i>	<i>Heliotropium</i> sp.	2
	<i>Moltkia</i>	<i>Moltkia coerulea</i>	1
	<i>Myosotis</i>	<i>Myosotis</i> sp.	2
	<i>Nonnea</i>	<i>Nonnea</i> sp.	1
	<i>Nonnea</i>	<i>Nonnea mucronata</i>	1
	<i>Nonnea</i>	<i>Nonnea caspica</i>	1
	<i>Nonnea</i>	<i>Nonnea</i> sp.	1
	<i>Onosma</i>	<i>Onosma</i> sp.	3
	-	-	2
	-	-	1
	<i>Allysum</i>	<i>Allysum minus</i>	1
	<i>Allysum</i>	<i>Allysum</i> sp.	1
	<i>Auberiata</i>	<i>Auberiata</i> sp.	1
	<i>Brassica</i>	<i>Brassica nigra</i>	1
	<i>Brassica</i>	<i>Brassica oleracea</i>	3
	<i>Brassica</i>	<i>Brassica oleraceae</i>	1
	<i>Cheiranthus</i>	<i>Cheiranthus</i> sp.	1
	<i>Descurainia</i>	<i>Descurainia sophia</i>	1

	<i>Erisimum</i>	<i>Erisimum sp</i>	1
	<i>Eruca</i>	<i>Eruca sativa</i>	2
	<i>Erysimum</i>	<i>Erysimum sp.</i>	1
	<i>Fibigia</i>	<i>Fibigia sp.</i>	1
	<i>Isatis</i>	<i>Isatis kotschyana</i>	1
	<i>Isatis</i>	<i>Isatis sp.</i>	2
	<i>Mathiola</i>	<i>Matthiola sp.</i>	3
	<i>Mathiola</i>	<i>Matthiola alyssifolia</i>	1
	<i>Nasturtium</i>	<i>Nasturtium officinalis</i>	1
	<i>Aubrieta</i>	<i>Aubrieta sp.</i>	1
Brassicaceae	-	-	12
Brassicaceae	<i>Aethionema</i>	<i>Aethionema fimbriatum</i>	1
	<i>Alyssum</i>	<i>Alyssum sp.</i>	3
Brassicaceae	<i>Cardaria</i>	<i>Cardaria draba</i>	1
	<i>Crambe</i>	<i>Crambe orientalis</i>	1
	<i>Isatis</i>	<i>Isatis sp.</i>	2
	<i>Sameraria</i>	<i>Sameraria sp.</i>	1
	<i>Sisymbrium</i>	<i>Sisymbrium sp.</i>	1
Buxaceae	<i>Buxus</i>	<i>Buxus hyrcanus</i>	1
Campanu- laceae	<i>Campanula</i>	<i>Campanula phyctidocalyx</i>	1
	<i>Campanula</i>	<i>Campanula sp.</i>	6
Capparidaceae	<i>Capparis</i>	<i>Capparis sp.</i>	3
Capparidaceae	<i>Capparis</i>	<i>Capparis spinosa</i>	1
	<i>Capparis</i>	<i>Capparis spp.</i>	2
	<i>Cleome</i>	<i>Cleome sp.</i>	3
Caprifoliaceae	<i>Lonicera</i>	<i>Lonicera sp.</i>	2
	<i>Sambucus</i>	<i>Sambucus ebulus</i>	34
	<i>Sambucus</i>	<i>Sambucus sp.</i>	4

Caryophyllaceae	<i>Acanthophyllum</i>	<i>Acanthophyllum glandulosum</i>	1
	<i>Acanthophyllum</i>	<i>Acanthophyllum sp.</i>	6
	<i>Dianthus</i>	<i>Dianthus crossopetalus</i>	1
	<i>Dianthus</i>	<i>Dianthus sp.</i>	12
	<i>Gypsophila</i>	<i>Gypsophila leioclada</i>	1
	<i>Gypsophila</i>	<i>Gypsophila sp.</i>	3
	<i>Saponaria</i>	<i>Saponaria officinalis</i>	1
	<i>Silene</i>	<i>Silene sp.</i>	1
	<i>Silene</i>	<i>Silene stapfii</i>	1
Caryophyllaceae	-	-	3
Chenopodiaceae	-	-	1
	<i>Anabasis</i>	<i>Anabasis articulata</i>	1
	<i>Anabasis</i>	<i>Anabasis setifera</i>	1
	<i>Anabasis</i>	<i>Anabasis sp.</i>	1
	<i>Atriplex</i>	<i>Atriplex sp.</i>	1
	<i>Beta</i>	<i>Beta sp.</i>	10
	<i>Beta</i>	<i>Beta vulgaris</i>	6
	<i>Camphorosma</i>	<i>Camphorosma monspeliaca</i>	1
	<i>Chenopodium</i>	<i>Chenopodium ambrosioides</i>	1
	<i>Chenopodium</i>	<i>Chenopodium sp.</i>	3
	<i>Climacoptera</i>	<i>Climacoptera sp.</i>	1
	<i>Cornulaca</i>	<i>Cornulaca monacantha</i>	1
	<i>Halanthium</i>	<i>Halanthium sp.</i>	1
	<i>Halimocnemis</i>	<i>Halimocnemis sp.</i>	1
	<i>Halocharis</i>	<i>Halocharis sp.</i>	2
	<i>Haloxylon</i>	<i>Haloxylon sp.</i>	1
	<i>Kochia</i>	<i>Kochia sp.</i>	1

	<i>Salicornia</i>	<i>Salicornia sp.</i>	1
	<i>Salsola</i>	<i>Salsola sp.</i>	3
Chenopodiaceae	-	-	2
	Chenopodium	Chenopodium sp.	1
Cistaceae	Cistus	Cistus sp.	1
	Fumana	Fumana sp.	1
Clusiaceae	Garcinia	Garcinia mangostana	1
Colchicaceae	Colchicum	Colchicum persicum	1
	Colchicum	Colchicum kurdicum	1
	Colchicum	Colchicum sp.	8
Convallariaceae	Polygonatum	Polygonatum sp.	2
	Convolvulaceae	Convolvulaceae sp.	1
	Ipomoea	Ipomoea sp.	1
	Convolvulus	Convolvulus sp.	1
Crassulaceae	Sedum	1	
Cucurbitaceae	Bryonia	Bryonia aspera	1
	Bryonia	Bryonia sp.	3
	Citrullus	Citrullus sp.	1
	Cucumis	Cucumis sativus	1
	Cucurbita	Cucurbita maxima	4
	Cucurbita	Cucurbita moschata	2
	Cucurbita	Cucurbita pepo	1
	Cucurbita	Cucurbita sp.	4
	Cucurbita	Cucurbita spp.	4
	lagenaria	lagenaria sp.	1
	Momordica	Momordica charantia	1
Cucurbitaceae	-	-	1
Cupressaceae	Cupressus	Cupressus sp.	1

	Juniperus	Juniperus sp.	1
Cyperaceae	Carex	Carex sp.	1
	-	-	1
Dipsacaceae	<i>Pterocephalus</i>	<i>Pterocephalus</i> sp.	1
	<i>Scabiosa</i>	<i>Scabiosa</i> sp.	1
	<i>Pterocephalus</i>	<i>Pterocephalus canus</i>	1
Ebenaceae	<i>Diospyros</i>	<i>Diospyros lotus</i>	1
Elaeagnaceae	<i>Elaeagnus</i>	<i>Elaeagnus</i> sp.	1
Ephedraceae	<i>Ephedra</i>	<i>Ephedra intermedia</i>	1
	<i>Ephedra</i>	<i>Ephedra</i> sp.	4
	<i>Ephedra</i>	<i>Ephedra</i> spp.	3
Equisetaceae	<i>Equisetum</i>	<i>Equisetum</i>	1
	<i>Equisetum</i>	<i>Equisetum ramosissimum</i>	1
	<i>Equisetum</i>	<i>Equisetum</i> sp.	2
Euphorbiaceae	Andrachne	<i>Andrachne</i> sp.	1
	<i>Euphorbia</i>	<i>Euphorbia</i>	1
	<i>Euphorbia</i>	<i>Euphorbia boissieriana</i>	1
	<i>Euphorbia</i>	<i>Euphorbia</i> sp.	4
	<i>Ricinus</i>	<i>Ricinus Communis</i>	3
Fabaceae	-	-	1
	<i>Alhagi</i>	<i>Alhagi persarum</i>	1
	<i>Cicer</i>	<i>Cicer arietinum</i>	434
	<i>Cicer</i>	<i>Cicer</i> sp.	11
	<i>Coronilla</i>	<i>Coronilla varia</i>	1
	<i>Glycyrrhiza</i>	<i>Glycyrrhiza glabra</i>	2
	<i>Glycyrrhiza</i>	<i>Glycyrrhiza</i> sp.	2
	<i>Lathyrus</i>	<i>lathyrus ochrus</i>	1
	<i>Lathyrus</i>	<i>Lathyrus sativus</i>	9
	<i>Lens</i>	<i>Lens culinaris</i>	450

<i>Lens</i>	<i>Lens culinaris</i> subsp <i>culinaris</i>	381
<i>Lens</i>	<i>Lens</i> sp.	1
<i>Lotus</i>	<i>Lotus michauxianus</i>	1
<i>Medicago</i>	<i>Medicago radiata</i>	1
<i>Medicago</i>	<i>Medicago sativa</i>	3
<i>Medicago</i>	<i>Medicago</i> sp.	1
<i>Medicago</i>	<i>Medicago</i> spp.	2
<i>Onobrychis</i>	<i>Onobrychis</i> sp.	2
<i>Onobrychis</i>	<i>Onobrychis altissima</i>	4
<i>Phaseolus</i>	<i>Phaseolus vulgaris</i>	329
<i>Pisum</i>	<i>Pisum sativum</i>	7
<i>Pisum</i>	<i>pisum sativum</i> subsp <i>sativum</i>	1
<i>Securigera</i>	<i>Securigera securidaca</i>	1
<i>Smyrniopsis</i>	<i>Smyrniopsis aucheri</i>	1
<i>Sophora</i>	<i>Sophora alopecuroides</i>	1
<i>Sophora</i>	<i>Sophora alopecuroides</i>	1
<i>Sophora</i>	<i>Sophora</i> sp.	5
<i>Trifolium</i>	<i>Trifolium angustifolium</i>	3
<i>Trifolium</i>	<i>Trifolium campestre</i>	2
<i>Trifolium</i>	<i>Trifolium cherleri</i>	3
<i>Trifolium</i>	<i>Trifolium dasyurum</i>	3
<i>Trifolium</i>	<i>Trifolium echinatum</i>	4
<i>Trifolium</i>	<i>Trifolium fragiferum</i>	7
<i>Trifolium</i>	<i>Trifolium grandiflorum</i>	1
<i>Trifolium</i>	<i>Trifolium hirtum</i>	4
<i>Trifolium</i>	<i>Trifolium hybridum</i>	1
<i>Trifolium</i>	<i>Trifolium lappaceum</i>	4
<i>Trifolium</i>	<i>Trifolium leucanthum</i>	2

<i>Trifolium</i>	<i>Trifolium lucanicum</i>	2
<i>Trifolium</i>	<i>Trifolium nigrescens</i>	2
<i>Trifolium</i>	<i>Trifolium obscurum</i>	4
<i>Trifolium</i>	<i>Trifolium pilulare</i>	1
<i>Trifolium</i>	<i>Trifolium purpureum</i>	2
<i>Trifolium</i>	<i>Trifolium repens</i>	1
<i>Trifolium</i>	<i>Trifolium resupinatum</i>	34
<i>Trifolium</i>	<i>Trifolium retusum</i>	2
<i>Trifolium</i>	<i>Trifolium spumosum</i>	4
<i>Trifolium</i>	<i>Trifolium subterraneum</i>	1
<i>Trifolium</i>	<i>Trifolium sylvaticum</i>	1
<i>Trifolium</i>	<i>Trifolium tumens</i>	2
<i>Trifolium</i>	<i>Trifolium sp.</i>	1
<i>Trigonella</i>	<i>Trigonella astroides</i>	2
<i>Trigonella</i>	<i>Trigonella aurantiaca</i>	4
<i>Trigonella</i>	<i>Trigonella crassipes</i>	1
<i>Trigonella</i>	<i>Trigonella disperma</i>	2
<i>Trigonella</i>	<i>Trigonella filipes</i>	1
<i>Trigonella</i>	<i>Trigonella foenum- graecum</i>	1
<i>Trigonella</i>	<i>Trigonella monantha</i>	21
<i>Trigonella</i>	<i>Trigonella monspeliaca</i>	3
<i>Trigonella</i>	<i>Trigonella orthoceras</i>	2
<i>Trigonella</i>	<i>Trigonella sp.</i>	3
<i>Trigonella</i>	<i>Trigonella spp.</i>	4
<i>Trigonella</i>	<i>Trigonella spruneriana</i>	3
<i>Vicia</i>	<i>Vicia angustifolia</i>	1
<i>Vicia</i>	<i>Vicia ervilia</i>	12
<i>Vicia</i>	<i>Vicia faba</i>	16
<i>Vicia</i>	<i>vicia peregrina</i>	1

	<i>Vicia</i>	<i>Vicia sativa</i>	26
	<i>Vicia</i>	<i>Vicia spp.</i>	25
	<i>Vicia</i>	<i>Vicia variabilis</i>	1
	<i>Vicia</i>	<i>vicia villosa</i>	2
	<i>Vigna</i>	<i>Vigna radiata</i>	537
	<i>Vigna</i>	<i>Vigna unguiculata</i>	6
	-	-	3
	<i>Astragalus</i>	<i>Astragalus sp.</i>	5
Fagaceae	<i>Castanea</i>	<i>Castanea sativa</i>	1
	<i>Quercus</i>	<i>Quercus sp.</i>	2
Fumariaceae	<i>Corydalis</i>	<i>Corydalis marschalliana</i>	1
	<i>Corydalis</i>	<i>Corydalis sp.</i>	1
	<i>Fumaria</i>	<i>Fumaria asepala</i>	1
Geraniaceae	<i>Geranium</i>	<i>Geranium sp.</i>	1
	<i>biebersteinia</i>	<i>biebersteinia sp.</i>	1
Hyacinthaceae	<i>Bellevalia</i>	<i>Bellevalia sp.</i>	2
	<i>Muscari</i>	<i>Muscari sp.</i>	5
	<i>Ornithogalum</i>	<i>Ornithogalum sp.</i>	3
	<i>Scilla</i>	<i>Scilla sp.</i>	1
	<i>Hypericum</i>	<i>Hypericum androsae-</i> <i>mum</i>	5
	<i>Hypericum</i>	<i>Hypericum apricum</i>	1
	<i>Hypericum</i>	<i>Hypericum perforatum</i>	13
	<i>Hypericum</i>	<i>Hypericum scabrum</i>	2
	<i>Hypericum</i>	<i>Hypericum sp.</i>	31
Iridaceae	<i>Crocus</i>	<i>Crocus sp.</i>	1
Iridaceae	<i>Gladiolus</i>	<i>Gladiolus atroviolaceus</i>	1
	<i>Gladiolus</i>	<i>Gladiolus sp.</i>	2
	<i>Iris</i>	<i>Iris sp.</i>	9
Lamiaceae	<i>Ajuga</i>	<i>Ajuga sp.</i>	1

<i>Ballota</i>	<i>Ballota platyloma</i>	1
<i>Calamintha</i>	<i>Calamintha officinalis</i>	1
<i>Dracocephalum</i>	<i>Dracocephalum mol-</i> <i>davica</i>	1
<i>Dracocephalum</i>	<i>Dracocephalum poly-</i> <i>chaetum</i>	1
<i>Eremostachys</i>	<i>Eremostachys labiosi-</i> <i>formis</i>	1
<i>Eremostachys</i>	<i>Eremostachys macro-</i> <i>phylla</i>	1
<i>Eremostachys</i>	<i>Eremostachys sp.</i>	9
<i>Hymenocrater</i>	<i>Hymenocrater sp.</i>	1
<i>Hyssopus</i>	<i>Hyssopus sp.</i>	1
<i>lallelantia</i>	<i>Lallemantia iberica</i>	1
<i>Lamium</i>	<i>Lamium album</i>	2
<i>Lamium</i>	<i>Lamium sp.</i>	1
<i>Lamium</i>	-	1
<i>Lavandula</i>	<i>Lavandula sp.</i>	1
<i>Lycopus</i>	<i>Lycopus europeus</i>	1
<i>Marrubium</i>	<i>Marrubium persicum</i>	1
<i>Marrubium</i>	<i>Marrubium sp.</i>	12
<i>Marrubium</i>	<i>Marrubium spp.</i>	7
<i>Marrubium</i>	<i>Marrubium vulgare</i>	3
<i>Melissa</i>	<i>Melissa officinalis</i>	2
<i>Mentha</i>	<i>Mentha aquatica</i>	1
<i>Mentha</i>	<i>Mentha longifolia</i>	6
<i>Mentha</i>	<i>Mentha sp.</i>	8
<i>Mentha</i>	-	1
<i>Nepeta</i>	<i>Nepeta asterotricha</i>	1
<i>Nepeta</i>	<i>Nepeta fissa</i>	1

<i>Nepeta</i>	<i>Nepeta heliotropifolia</i>	1
<i>Nepeta</i>	<i>Nepeta racemosa</i>	1
<i>Nepeta</i>	<i>Nepeta rivularis</i>	1
<i>Nepeta</i>	<i>Nepeta sp.</i>	8
<i>Nepeta</i>	<i>Nepeta spp.</i>	2
<i>Ocimum</i>	<i>Ocimum basilicum</i>	2
<i>Origanum</i>	<i>Origanum sp.</i>	2
<i>Origanum</i>	<i>Origanum spp.</i>	21
<i>Origanum</i>	<i>Origanum vulgare</i>	7
<i>Perovskia</i>	<i>Perovskia abrotanoides</i>	1
<i>Perovskia</i>	<i>Perovskia artemisioides</i>	1
<i>Perovskia</i>	<i>Perovskia sp.</i>	2
<i>Phlomis</i>	<i>Phlomis olivieri</i>	1
<i>Phlomis</i>	<i>Phlomis sp.</i>	7
<i>Pimpinella</i>	<i>Pimpinella sp.</i>	1
<i>Prunella</i>	<i>Prunella vulgaris</i>	1
<i>Rosmarinus</i>	<i>Rosmarinus officinalis</i>	2
<i>Salvia</i>	<i>Salvia sp.</i>	1
<i>Salvia</i>	<i>Salvia hypoleuca</i>	1
<i>Salvia</i>	<i>Salvia aristata</i>	1
<i>Salvia</i>	<i>Salvia multicaulis</i>	2
<i>Salvia</i>	<i>Salvia nemorosa</i>	2
<i>Salvia</i>	<i>Salvia officinalis</i>	17
<i>Salvia</i>	<i>Salvia pocolata</i>	1
<i>Salvia</i>	<i>Salvia rhytida</i>	1
<i>Salvia</i>	<i>Salvia sp.</i>	30
<i>Salvia</i>	<i>Salvia sylvestris</i>	1
<i>Salvia</i>	<i>Salvia syriaca</i>	1
<i>Salvia</i>	<i>Salvia verticillata</i>	2
<i>Satureja</i>	<i>Satureja boissieri</i>	1

	<i>Satureja</i>	<i>Satureja hortensis</i>	3
	<i>Satureja</i>	<i>Satureja macrantha</i>	1
	<i>Satureja</i>	<i>Satureja</i> sp.	6
	<i>Satureja</i>	<i>Satureja</i> spp.	6
	<i>Scutellaria</i>	<i>Scutellaria</i> sp.	6
	<i>Stachys</i>	<i>Stachys byzantina</i>	1
	<i>Stachys</i>	<i>Stachys fruticulosa</i>	1
	<i>Stachys</i>	<i>Stachys inflata</i>	2
	<i>Stachys</i>	<i>Stachys lavandulifolia</i>	3
	<i>Stachys</i>	<i>Stachys</i> sp.	8
	<i>Teucrium</i>	<i>Teucrium hyrcanicum</i>	1
	<i>Teucrium</i>	<i>Teucrium polium</i>	7
	<i>Teucrium</i>	<i>Teucrium</i> sp.	4
	<i>Teucrium</i>	<i>Teucrium</i> spp.	6
	<i>Teucrium</i>	<i>Teucrium chamaedrys</i>	1
	<i>Teucrium</i>	<i>Teucrium stocksianum</i>	1
	<i>Thymus</i>	<i>Thymus carmanicus</i>	2
	<i>Thymus</i>	<i>Thymus fallax</i>	2
	<i>Thymus</i>	<i>Thymus kotschyanus</i>	1
	<i>Thymus</i>	<i>thymus</i> sp.	14
	<i>Thymus</i>	<i>Thymus</i> spp.	3
	<i>Thymus</i>	<i>Thymus vulgaris</i>	1
	<i>Ziziphora</i>	<i>Ziziphora clinopodioides</i>	10
	<i>Ziziphora</i>	<i>Ziziphora</i> sp.	6
	<i>Ziziphora</i>	<i>Ziziphora tenuior</i>	3
	-	-	23
Liliaceae	<i>Eremurus</i>	<i>Eremurus</i> sp.	1
Liliaceae	<i>Eremorus</i>	<i>Eremurus spectabilis</i>	1
	<i>Fritillaria</i>	<i>Fritillaria imperialis</i>	3
	<i>Fritillaria</i>	<i>Fritillaria</i> sp.	3

	<i>Fritillaria</i>	-	1
	<i>Gagea</i>	<i>Gagea</i> sp.	10
	<i>Gagea</i>	-	1
	<i>Ornithogalum</i>	<i>Ornithogalum</i> sp.	1
	<i>Tulipa</i>	<i>Tulipa</i> sp.	16
	<i>Linum</i>	<i>Linum austriacum</i>	1
	<i>Linum</i>	<i>Linum</i> sp.	1
	<i>Linum</i>	<i>Linum usitatissimum</i>	66
Loranthaceae	<i>Loranthus</i>	<i>Loranthus grewinkii</i>	1
	<i>Viscum</i>	<i>Viscum album</i>	1
Lythraceae	<i>Lythrum</i>	<i>lythrum salicaria</i>	1
	<i>Lythrum</i>	<i>Lythrum</i> sp.	1
Malvaceae	<i>Alcea</i>	<i>Alcea rosea</i>	1
	<i>Alcea</i>	<i>Alcea</i> sp.	8
	<i>Althaea</i>	<i>Althaea</i> sp.	9
	<i>Gossypium</i>	<i>Gossypium barbadense</i>	1
	<i>Gossypium</i>	<i>Gossypium hirsutum</i>	4
	<i>Hibiscus</i>	<i>Hibiscus cannabinus</i>	5
	<i>Malva</i>	<i>Malva</i> sp.	5
Meliaceae	<i>Melia</i>	<i>Melia azedarach</i>	1
Mimosaceae	<i>Prosopis</i>	<i>Prosopis</i> sp.	1
Nyctaginaceae	<i>Mirabilis</i>	<i>Mirabilis jalapa</i>	1
Oleaceae	<i>Jasminium</i>	<i>Jasminium</i> sp.	2
	<i>Ligustrum</i>	<i>Ligustrum</i> sp.	1
Onagraceae	<i>Oenothera</i>	<i>Oenothera biennis</i>	1
	<i>Oenothera</i>	<i>Oenothera</i> sp.	1
Orchidaceae	<i>Dactylorhiza</i>	<i>Dactylorhiza umbrosa</i>	1
	-	-	3
Paeoniaceae	<i>Paeonia</i>	<i>Paeonia</i> sp.	1
Papaveraceae	<i>Chelidonium</i>	<i>Chelidonium majus</i>	20

	<i>Glaucium</i>	<i>Glaucium oxylobum</i>	1
	<i>Glaucium</i>	<i>Glaucium sp.</i>	7
	<i>Papaver</i>	<i>Papaver lasiothrix</i>	1
	<i>Papaver</i>	<i>Papaver armeniacum</i>	1
	<i>Papaver</i>	<i>Papaver bracteatum</i>	6
	<i>Papaver</i>	<i>Papaver sp.</i>	11
	<i>Papaver</i>	<i>Papaver spp.</i>	2
	<i>Roemeria</i>	<i>Roemeria refracta</i>	1
Phytolac- caceae	<i>Phytolacca</i>	<i>Phytolacca americana</i>	1
	<i>Phytolacca</i>	<i>Phytolacca sp.</i>	1
	<i>Phytolacca</i>	<i>Phytolacca spp.</i>	7
Pinaceae	<i>Cedrus</i>	<i>Cedrus sp.</i>	1
Plantaginaceae	<i>Plantago</i>	<i>Plantago lanceolata</i>	1
Plantaginaceae	<i>Plantago</i>	<i>Plantago ovata</i>	1
	<i>Plantago</i>	<i>Plantago psyllium</i>	1
	<i>Plantago</i>	<i>Plantago sp.</i>	4
	<i>Plantago sp.</i>	<i>Plantago sp.</i>	1
Plumbaginaceae	<i>Acantholimon</i>	<i>Acantholimon sp.</i>	3
	<i>Limonium</i>	<i>Limonium sp.</i>	1
	<i>Plumbago</i>	<i>Plumbago europaea</i>	1
Poaceae	-	-	1
	<i>Aegilops</i>	<i>Aegilops columnaris</i>	1
	<i>Aegilops</i>	<i>Aegilops crassa</i>	3
	<i>Aegilops</i>	<i>Aegilops cylindrica</i>	4
	<i>Aegilops</i>	<i>Aegilops kotschyi</i>	2
	<i>Aegilops</i>	<i>Aegilops sp.</i>	17
	<i>Aegilops</i>	<i>Aegilops tauschii</i>	29
	<i>Aegilops</i>	<i>Aegilops triuncialis</i>	39
	<i>Aegilops</i>	<i>Aegilops umbellulata</i>	2
	<i>Agropyrum</i>	<i>Agropyrum sp.</i>	9

<i>Avena</i>	<i>Avena byzantina</i>	4
<i>Avena</i>	<i>Avena sativa</i>	3
<i>Avena</i>	<i>Avena spp.</i>	6
<i>Avena</i>	<i>Avena sterilis</i>	34
<i>Brachypodium</i>	<i>Brachypodium distachyon</i>	2
<i>Bromus</i>	<i>Bromus danthonia</i>	1
<i>Bromus</i>	<i>Bromus japonicus</i>	4
<i>Bromus</i>	<i>Bromus madritensis</i>	1
<i>Bromus</i>	<i>Bromus tectorum</i>	1
<i>Bromus</i>	<i>Bromus tomentellus</i>	2
<i>Cortaderia</i>	<i>Cortaderia sp.</i>	1
<i>Digitaria</i>	<i>Digitaria eriantha</i>	1
<i>Elymus</i>	<i>Elymus spp.</i>	2
<i>Elymus</i>	<i>Elymus transhyrcanus</i>	1
<i>Elytrigia</i>	<i>Elytrigia libanotica</i>	1
<i>Eminium</i>	<i>Eminium sp.</i>	1
<i>Eremopyrum</i>	<i>Eremopyrum bonaepartis</i>	4
<i>Festuca</i>	<i>Festuca arundinacea</i>	1
<i>Hordeum</i>	<i>Hordeum bogdanii</i>	1
<i>Hordeum</i>	<i>Hordeum brevisubulatum</i>	10
<i>Hordeum</i>	<i>Hordeum bulbosum</i>	7
<i>Hordeum</i>	<i>Hordeum marinum</i>	6
<i>Hordeum</i>	<i>Hordeum murinum</i>	9
<i>Hordeum</i>	<i>Hordeum sp.</i>	1
<i>Hordeum</i>	<i>Hordeum spontaneum</i>	36
<i>Hordeum</i>	<i>Hordeum spp.</i>	439
<i>Hordeum</i>	<i>Hordeum vulgare</i>	302
<i>Lolium</i>	<i>Lolium perenne</i>	4
<i>Lolium</i>	<i>Lolium persicum</i>	1
<i>Lolium</i>	<i>Lolium rigidum</i>	2

<i>Oryza</i>	<i>Oryza sativa</i>	202
<i>Panicum</i>	<i>Panicum miliaceum</i>	4
<i>Paspalum</i>	<i>Paspalum sp.</i>	1
<i>Poa</i>	<i>Poa araratica</i>	1
<i>Poa</i>	<i>Poa bulbosa</i>	6
<i>Poa</i>	<i>Poa mazandaranica</i>	1
<i>Poa</i>	<i>Poa spp.</i>	2
<i>Secale</i>	<i>Secale cereale</i>	1
<i>Secale</i>	<i>Secale spp.</i>	34
<i>Setaria</i>	<i>Setaria italica</i>	2
<i>Taeniatherum</i>	<i>Taeniatherum caput</i>	13
<i>Triticum</i>	<i>nc</i>	8
<i>Triticum</i>	<i>Triticum aestivum</i>	1811
<i>Triticum</i>	<i>Triticum aestivum spelta</i>	1
<i>Triticum</i>	<i>Triticum baеoticum</i>	6
<i>Triticum</i>	<i>Triticum carthlicum</i>	1
<i>Triticum</i>	<i>Triticum compactum</i>	5
<i>Triticum</i>	<i>Triticum dicoccon</i>	9
<i>Triticum</i>	<i>Triticum durum</i>	206
<i>Triticum</i>	<i>Triticum hybrid</i>	5
<i>Triticum</i>	<i>Triticum ispahanicum</i>	7
<i>Triticum</i>	<i>Triticum monococum</i>	1
<i>Triticum</i>	<i>Triticum monococum</i>	9
	<i>boeoticum</i>	
<i>Triticum</i>	<i>Triticum persicum</i>	1
<i>Triticum</i>	<i>Triticum polonicum</i>	1
<i>Triticum</i>	<i>Triticum sp.</i>	797
<i>Triticum</i>	<i>Triticum spelta</i>	2
<i>Triticum</i>	<i>Triticum spp.</i>	6
<i>Triticum</i>	<i>Triticum timopheevii</i>	1
	<i>araraticum</i>	

	<i>Triticum</i>	<i>Triticum turanicum</i>	4
	<i>Triticum</i>	<i>Triticum turgidum</i>	6
	<i>Triticum</i>	<i>Triticum turgidum carth- licum</i>	4
	<i>Triticum</i>	<i>Triticum vulgare</i>	44
	<i>Zea</i>	<i>Zea mays</i>	9
Poaceae	-	-	1
Polygalaceae	<i>Polygala</i>	<i>Polygala sp.</i>	2
	<i>Atraphaxis</i>	<i>Atraphaxis spinosa</i>	1
	<i>Fagopyrum</i>	<i>Fagopyrum esculentum</i>	1
	<i>Polygonum</i>	<i>Polygonum sp.</i>	2
	<i>Pteropyrum</i>	<i>Pteropyrum olivieri</i>	2
	<i>Pteropyrum</i>	<i>Pteropyrum sp.</i>	4
	<i>Rheum</i>	<i>Rheum sp.</i>	1
	<i>Rheum</i>	.	1
	<i>Rheum</i>	<i>Rheum ribes</i>	2
	<i>Rheum</i>	<i>Rheum sp.</i>	1
	<i>Rumex</i>	<i>Rumex scutatus</i>	1
	<i>Rumex</i>	<i>Rumex sp.</i>	13
Portulacaceae	<i>Portulaca</i>	<i>Portulaca grandiflora</i>	2
	<i>Portulaca</i>	<i>Portulaca sp.</i>	1
Primulaceae	<i>Androsace</i>	<i>Androsace sp.</i>	1
	<i>Cyclamen</i>	<i>Cyclamen sp.</i>	1
	<i>Dionysia</i>	<i>Dionysia sp.</i>	1
	<i>Primula</i>	<i>Primula sp.</i>	3
	-	-	1
Pteridaceae	<i>Pteridium</i>	<i>Pteridium aquilinum</i>	1
Ranunculaceae	<i>Adonis</i>	<i>Adonis aestivalis</i>	1
	<i>Adonis</i>	<i>Adonis sp.</i>	2
	<i>Anemone</i>	<i>Anemone sp.</i>	1
	<i>Aquilegia</i>	<i>Aquilegia sp.</i>	2
	<i>Clematis</i>	<i>Clematis ispanhanica</i>	2

	<i>Clematis</i>	<i>Clematis sp.</i>	4
	<i>Ficaria</i>	<i>Ficaria sp.</i>	2
	<i>Nigella</i>	<i>Nigella sp.</i>	1
	<i>Nigella</i>	<i>Nigella sativa</i>	2
	<i>Ranunculus</i>	<i>Ranunculus sp.</i>	7
	<i>Thalictrum</i>	<i>Thalictrum minus</i>	1
	-	-	1
Resedaceae	<i>Reseda</i>	<i>Reseda lutea</i>	2
	<i>Reseda</i>	<i>Reseda sp.</i>	4
Rhamnaceae	<i>Rhamnus</i>	<i>Rhamnus pallasii</i>	1
	<i>Rhamnus</i>	<i>Rhamnus sp.</i>	4
	<i>Ziziphus</i>	<i>Ziziphus mauritiana</i>	1
Rosaceae	<i>Amygdalus</i>	<i>Amygdalus communis</i>	1
	<i>Amygdalus</i>	<i>Amygdalus lycioides</i>	2
	<i>Amygdalus</i>	<i>Amygdalus scoparia</i>	1
	<i>Amygdalus</i>	<i>Amygdalus sp.</i>	5
	<i>Cotoneaster</i>	<i>Cotoneaster cf. numu- larius</i>	1
	<i>Cotoneaster</i>	<i>Cotoneaster morulus</i>	1
	<i>Crataegus</i>		1
	<i>Cydonia</i>	<i>Cydonia sp.</i>	1
	<i>Fragaria</i>	<i>Fragaria vesca</i>	1
	<i>Mespilus</i>	<i>Mespilus sp.</i>	1
	<i>Prunus</i>	<i>Prunus sp.</i>	2
	<i>Rosa</i>	<i>Rosa persica</i>	1
	<i>Rosa</i>	<i>Rosa sp.</i>	1
	<i>Rubus</i>	<i>Rubus sp.</i>	1
	<i>Sanguisirba</i>	<i>Sanguisirba sp.</i>	2
	-	-	2
	<i>Cotoneaster</i>	<i>Cotoneaster sp.</i>	1
Rubiaceae	-	-	2

	<i>Cruciata</i>	-	1
	<i>Galium</i>	<i>Galium sp.</i>	2
	<i>Rubia</i>	<i>Rubia sp.</i>	7
	<i>Rubia</i>	<i>Rubia Tinctorum</i>	1
	-	-	1
Ruscaceae	<i>Danae</i>	<i>Danae racemosa</i>	2
	<i>Ruscus</i>	<i>Ruscus hyrcanus</i>	2
Salicaceae	<i>Salix</i>	<i>Salix sp.</i>	1
Sapindaceae	<i>Nephelium</i>	<i>Nephelium lappaceum</i>	1
Scrophulariaceae	<i>Antirrhinum</i>	<i>Antirrhinum majus</i>	1
	<i>Antirrhinum</i>	<i>Antirrhinum sp.</i>	1
	<i>Dianthus</i>	<i>Dianthus sp.</i>	1
	<i>Digitalis</i>	<i>Digitalis nervosa</i>	1
	<i>Digitalis</i>	<i>Digitalis sp.</i>	4
	<i>Digitalis</i>	<i>Digitalis spp.</i>	2
	<i>Leptorhabdos</i>	<i>Leptorhabdos parviflora</i>	1
	<i>Linaria</i>	<i>Linaria sp.</i>	1
	<i>Scrophularia</i>	<i>Scrophularia frigida</i>	1
	<i>Scrophularia</i>	<i>Scrophularia sp.</i>	7
	<i>Scrophularia</i>	<i>Scrophularia spp.</i>	2
	<i>Scrophularia</i>	<i>Scrophularia vernalis</i>	1
	<i>Verbascum</i>	<i>Verbascum sp.</i>	7
	<i>Verbascum</i>	<i>Verbascum spp.</i>	2
	<i>Verbascum</i>	<i>Verbascum Thapsus</i>	1
	-	-	1
Solanaceae	<i>Capsicum</i>	<i>Capsicum annum</i>	65
	<i>Datura</i>	<i>Datura sp.</i>	1
	<i>Datura</i>	<i>Datura spp.</i>	1
	<i>Datura</i>	<i>Datura stramonium</i>	1
	<i>Hyoscyamus</i>	<i>Hyoscyamus senecionis</i>	1
	<i>Hyoscyamus</i>	<i>Hyoscyamus hana</i>	1

	<i>Hyoscyamus</i>	<i>Hyoscyamus niger</i>	2
	<i>Hyoscyamus</i>	<i>Hyoscyamus pusillus</i>	1
	<i>Hyoscyamus</i>	<i>Hyoscyamus reticulatus</i>	1
	<i>Hyoscyamus</i>	<i>Hyoscyamus sp.</i>	8
	<i>Hyoscyamus</i>	<i>Hyoscyamus turcomanicus</i>	1
	<i>Lycium</i>	<i>Lycium sp.</i>	3
	<i>Petunia</i>	<i>Petunia hybrida</i>	12
	<i>Petunia</i>	<i>Petunia sp.</i>	1
	<i>Solanum</i>	<i>Solanum Lycopersicum</i>	68
	<i>Solanum</i>	<i>Solanum melongena</i>	18
Tamaricaceae	<i>Myricaria</i>	<i>Myricaria germanica</i>	1
	<i>Tamarix</i>	<i>Tamarix sp.</i>	2
Thymelaeaceae	<i>Daphne</i>	<i>Daphne sp.</i>	1
	<i>Daphne</i>	-	1
	<i>Dendrostellera</i>	<i>Dendrostellera sp.</i>	1
	<i>Thymelaea</i>	<i>Thymelaea sp.</i>	1
Ulmaceae	<i>Zelkova</i>	<i>Zelkova sp.</i>	1
Urticaceae	<i>Parietaria</i>	<i>Parietaria sp.</i>	2
	<i>Parietaria</i>	<i>Parietaria judaica</i>	1
	<i>Urtica</i>	<i>Urtica sp.</i>	8
	<i>Urtica</i>	<i>Urtica spp.</i>	2
Valerianaceae	<i>Valeriana</i>	<i>Valeriana officinalis</i>	1
	<i>Valeriana</i>	<i>Valeriana sisymbriifolia</i>	1
	<i>Valeriana</i>	<i>Valeriana sp.</i>	2
	<i>Valeriana</i>	<i>Valeriana officinalis</i>	1
Verbenaceae	<i>Lippia</i>	<i>Lippia citriodora</i>	1
	<i>Verbena</i>	<i>Verbena officinalis</i>	4
	<i>Verbena</i>	<i>Verbena spp.</i>	2
	<i>Vitex</i>	<i>Vitex sp.</i>	1
	<i>Vitex</i>	-	1

Violaceae	<i>Viola</i>	<i>Viola sp.</i>	3
	<i>Viola</i>	<i>Viola tricolor</i>	1
Zygophyl- laceae	<i>Peganum</i>	<i>Peganum harmala</i>	8
	<i>Peganum</i>	<i>Peganum sp.</i>	3
	<i>Zygophyllum</i>	<i>Zygophyllum sp.</i>	3
	<i>Zygophyllum</i>	<i>Zygophyllum spp.</i>	6
Grand Total	-	-	9257

Extracts list

<i>plant name</i>	
<i>Acantholimon hohenackeri</i>	<i>Aristolochia bottae</i>
<i>Achillea</i>	<i>Aristolochia sp.</i>
<i>Achillea tenuifolia</i>	<i>Artemisia absinthium</i>
<i>Achillea wilhelmsii</i>	<i>Artemisia aucheri</i>
<i>Acroptilon repens</i>	<i>Artemisia vulgaris</i>
<i>Aethionema grandiflorum</i>	<i>Artemisia absinthium</i>
<i>Ajuga</i>	<i>Artemisia annua</i>
<i>Alhagi persarum</i>	<i>Artemisia austriaca</i>
<i>Alkanna bracteosa</i>	<i>Artemisia campestris</i>
<i>Allium</i>	<i>Artemisia chamaemelifolia</i>
<i>Althea sp.</i>	<i>Artemisia ciniformis</i>
<i>Alyssum</i>	<i>Artemisia deserti</i>
<i>Anabasis</i>	<i>Artemisia diffusa</i>
<i>Anchusa italica</i>	<i>Artemisia fragrans</i>
<i>Anethum graveolens</i>	<i>Artemisia haussknechtii</i>
<i>Anthemis</i>	<i>Artemisia incana</i>
<i>Anthemis tinctoria</i>	<i>Artemisia khorassanica</i>
<i>Anthriscus cerefolium</i>	<i>Artemisia kopetdaghensis</i>
	<i>Artemisia marschalliana</i>

Artemisia melanolepis

Artemisia oliveriana

Artemisia santolina

Artemisia scoparia

Artemisia sieberi

Artemisia spicigera

Artemisia splendens

Artemisia tschernieviana

Artemisia tournefortiana

Artemisia tschernieviana

Artemisia turcomanica

Artemisia vulgaris

Astragalus

Berberis

Brassica

Bryonia

Bupleurum

Calendula persica

Cannabis sativa

Capparis spinosa

Cardaria draba

Carthamus oxyacantha

Clematis

Centaurea

Centaurea behen L.

Centaurea virgata

Chaerophyllum

Chaerophyllum macropodum

Chenopodium

Chenopodium botrys

Colchicum sp.

Cichorium intybus

Clematis orientalis

Cleome

Colchicum

Conium maculatum

Conium maculatum

Crambe orientalis

Cupressus sempervirens

Dianthus sp.

Digitalis

Diplotaenia cachrydifolia

Ducrosia anethifolia

Echinophora sibthorpiana

Echinops sp.

Echium

Echium italicum

Eminium sp.

Ephedra

Ephedra major

Equisetum

Equisetum sp.

Eremurus

Eremostachys

Euphorbia halophila

Falcaria vulgaris

Ferula

Ferula persica

Ferulago

Ficaria

Foeniculum vulgare

Fumaria asepala

Galium

Geranium

Glaucium

Glycyrrhiza glabra

Grammosciadium

Grammosciadium platycarpum

Gypsophila

Haplophyllum acutifolium

Heliotropium bovei

Heptaptera

Heracleum sp.

Hippomarathrum

Hippophae rhamnoides

Hymenocrater sp.

Hyoscyamus

Hyoscyamus niger

Hypericum sp.

Hypericum perforatum

Hypericum scabrum

Isatis

Ixiolirion

Ixiolirion tataricum

Lamiaceae

Lamium album

Lapsana intermedia

Lathyrus pratensis

Linum

Lotus

Malabaila

Malva

Marrubium cuneatum

Marrubium sp.

Matthiola

Mentha

Mentha longifolia

Nepeta

Nepeta crassifolia

Nigella sativa

Dactylorhiza umbrosa

Origanum

Origanum vulgare

Ornithogalum

Papaver

Papaver pseudo-orientale

Parietaria judaica

Peganum harmala

Pterocephalus canus

Phlomis

Phlomis olivieri

Phytolacca americana

Pimpinella

Plantago

Plantago major

Polygonatum

Portulaca oleracea

Prangos uloptera

Primula sp.

Reseda

Reseda lutea

Rheum

Rosmarinus officinalis

Rumex

Ruscus hyrcanus

Salvia

Salvia hypoleuca

Salvia nemorosa

Salvia sp.

Salvia verticillata

Sambucus ebulus

Sambucus

Sambucus ebulus

Sanguisorba minor

Silene sp.

Sophora

Sophora alopecuroides

Stachys

Stachys lavandulifolia

Tamarix ramosissima

Tanacetum

Tanacetum parthenifolium

Tanacetum parthenium

Tanacetum polycephalum

Tanacetum polycephalum Schultz-Bip
sub sp. *argyrophyllum* (C. Koch) Podl.

Teucrium

Teucrium polium

Thalictrum

Thymus sp.

Thymus vulgaris

Tragopogon sp.

Tribulus terrestris

Trigonella sp.

Tripleurospermum disciforme

Tussilago

Urtica dioica

Urtica dioica

Urtica sp.

Urtica sp.

Verbascum

Verbascum cheiranthifolium

Verbascum cheiranthifolium Boiss. Var.
transcaspicum

Verbena officinalis

Vicia

Vinca herbacea

Ziziphora

Ziziphora clinopodioides

Zosima absinthifolia

plant name

Achillea

Essential oils list

Achillea wilhelmsii

Alhagi sp.

Anthriscus cerefolium

Artemisia absinthium

Artemisia annua

Artemisia aucheri

Artemisia austriaca

Artemisia chamaemelifolia

Artemisia ciniformis

Artemisia deserti

Artemisia diffusa

Artemisia dracunculus

Artemisia fragrans

Artemisia haussknechtii

Essential oils list

<i>Artemisia incana</i>	<i>Hypericum scabrum</i>
<i>Artemisia khorassanica</i>	<i>Juglans sp.</i>
<i>Artemisia kopetdaghensis</i>	<i>Lamium album</i>
<i>Artemisia marschalliana</i>	<i>Lavandula officinalis</i>
<i>Artemisia oliveriana</i>	<i>Lippia citrodora</i>
<i>Artemisia scoparia</i>	<i>Matthiola</i>
<i>Artemisia sieberi</i>	<i>Mentha longifolia</i>
<i>Artemisia spicigera</i>	<i>Mentha piperita</i>
<i>Artemisia splendens</i>	<i>Mentha sp.</i>
<i>Artemisia tournefortiana</i>	<i>Mentha sp.</i>
<i>Artemisia tschernieviana</i>	<i>Nepeta crassifolia</i>
<i>Artemisia turcomanica</i>	<i>Peganum harmala</i>
<i>Artemisia vulgaris</i>	<i>Rosmarinus officinalis</i>
<i>Calendula persica</i>	<i>Rumex sp.</i>
<i>Cannabis sativa</i>	<i>Salvia hypoleuca</i>
<i>Carthamus oxyacantha</i>	<i>Salvia officinalis</i>
<i>Centaurea behen L.</i>	<i>Stachys lavandulifolia</i>
<i>Chaerophyllum macropodum Boiss.</i>	<i>Tanacetum parthenium</i>
<i>chenopodium ambrosioides L.</i>	<i>Thymus sp.</i>
<i>Chenopodium botrys</i>	<i>Tripleurospermum disciforme</i>
<i>Cupressus</i>	<i>Urtica dioica</i>
<i>Ducrosia anethifolia</i>	<i>Urtica sp.</i>
<i>Ducrosia anethifolia</i>	<i>Ziziphora clinopodioides</i>
<i>Eremostachys</i>	<i>Ziziphora tenuior</i>
<i>Falcaria vulgaris</i>	<i>Citrus sinensis Var. Thompson</i>
<i>Ferula persica</i>	<i>Citrus sinensis Var. March</i>
<i>Foeniculum vulgare</i>	<i>Citrus sinensis Var. Moro</i>
<i>Foeniculum vulgare</i>	<i>Citrus sinensis Var. Hamline</i>
<i>Hippomarathrum</i>	<i>Citrus nobilis</i>
<i>Hymenocrater sp.</i>	<i>Citrus nobilis Var. sari</i>

DNA Bank

“Genomic DNA of animal cell lines”

NO.	IBRC Number	Origin	cell line
1	IBRC D10074C	Rat skin fibroblast cell	RWT01
2	IBRC D10075C	Mouse myelomonocytic leukemia	WEHI-3B
3	IBRC D10076C	Rat skin fibroblast cell	RWE01
4	IBRC D10077C	Rat skin fibroblast cell	RWE02
5	IBRC D10078C	Rat skin fibroblast cell	RWT02
6	IBRC D10080C	Human lung carcinoma	A-549
7	IBRC D10081C	Human chronic myelogenous leukemia	K-562
8	IBRC D10082C	Epithelial	MCF-7
9	IBRC D10083C	Mouse lymphocyte	NFS-60
10	IBRC D10071C	Human Caucasian gastric adenocarcinoma	AGS
11	IBRC D10060C	Camel skin fibroblast cell	CaBa02
12	IBRC D10072C	Mouse monocyte macrophage	RAW 264.7

Genomic DNA of microorganisms

No.	IBRC Number	Name
1	IBRC M10205	<i>Pseudomonas aeruginosa</i>
2	IBRC M10208	<i>Escherchia coli</i>
3	IBRC M10210	<i>Bacillus subtilis</i>
4	IBRC M10220	<i>Piscibacillus halophilus</i>
5	IBRC M10218	<i>Salinivibrio proteolyticus</i>
6	IBRC M10221	<i>Halobacillus karajensis</i>
7	IBRC M10225	<i>Salinicoccus roseus</i>
8	IBRC M10226	<i>Salinicoccus kunmingensis</i>
9	IBRC M10228	<i>Salinicoccus alkaliphilus</i>
10	IBRC M10439	<i>Alkalibacillus flavidus</i>
11	IBRC M10627	<i>Salinicoccus qingdaonensis</i>
12	IBRC M10227	<i>Salinicoccus hispanicus</i>

12	IBRC M10592	<i>Marinobacter hydrocarbonoclasticus</i>
13	IBRC M10432	<i>Chromohalobacter sp</i>
14	IBRC M10598	<i>Idiomarina zobellii</i>
15	IBRC M10629	<i>saliterribacillus persicus</i>
16	IBRC M10625	<i>Bacillus foraminis</i>
17	IBRC M10562	<i>Piscibacillus salipiscarius</i>
18	IBRC M10565	<i>Oceanobacillus kapialis</i>
19	IBRC M10567	<i>Oceanobacillus profundus</i>
20	IBRC M10591	<i>Marinilactibacillus piezotolerans</i>
21	IBRC M10590	<i>Bacillus niabensis</i>
22	IBRC M10589	<i>Bacillus clausii</i>
23	IBRC M10214	<i>Halomonas elongata</i>
24	IBRC M10429	<i>Alcanivorax dieselolei</i>
25	IBRC M10446	<i>Bacillus iranensis</i>
26	IBRC M10564	<i>Halomonas denitrificans</i>
27	IBRC M10631	<i>Streptococcus agalactiae</i>
28	IBRC M10639	<i>Klebsiella axytoca</i>
29	IBRC M10443	<i>Salinicoccus qingdaonensis strain A9B</i>
30	IBRC M10249	<i>Halogeometricum borinquense</i>
31	IBRC M10339	<i>Halovivax ruber</i>
32	IBRC M10336	<i>Haloarcula vallismortis</i>
33	IBRC M10250	<i>Halorubrum saccharovororum</i>
34	IBRC M10248	<i>Haloferax volcanii</i>
35	IBRC M10593	<i>Pseudomonas pertucinogena</i>
36	IBRC M10633	<i>Listeria ivanovii subsp. Ivanovii</i>
37	IBRC M10635	<i>Staphylococcus saprophyticus</i>
38	IBRC M10636	<i>Staphylococcus saprophyticus</i>
39	IBRC M10560	<i>Ornithibacillus baviariensis</i>
40	IBRC M10595	<i>Aquisalibacillus elongatus</i>
41	IBRC M10561	<i>Microbacterium testaceum</i>
42	IBRC M10626	<i>Ornithinibacillus contaminans</i>

Vectors and Hosts Bank

Vectors list

No.	Vector type	Vector name
1	Plant vectors	pBI 121
2		pBin 19
3		pBin 19-35S
4		pCAMBIA 3301
5		pRTL
6		pART7
7		pART27
8		pHANNIBAL
9		pRTL+cp
10		pBI 121 (-GUS)
11		pCaMV
12		35 Sintron GW
13		pGE-4kb cpDNA- Tomato
14		pGE-4kb cpDNA- Lettuce
15		pGE-4kb cpDNA- spinach
16		pGR 106
17		TRV2
18		pCambia 1304
19		pGSA 1285
20	E. coli vectors	pBluescript I I KS
21		pGEM-3Z
22		pGEM-7Zf
23		(+)pET-21a
24		pET- 26b
25		(+)pET- 28a
26		pTZ18R
27		pGEM-T-Vector

28	E. coli vectors	pTZ57R/T
29		pBR322
30		pLysS
31		pGEX-5X
32		pUC18
33		pUC 19
34		pMal
35		pET 41a
36		pET 3a
37		pET 8c
38		pET 32a
39		pSK s(-)
40		pGEX4t-1
41		Mammalian vectors
42	pCDNA4/HisMax A	
43	pSV- β -Galactosidase	
44	pCDNA3.1/puro	
45	pIRES- hyg	
46	pC DEB4	
47	pCDEB-GFP	
48	pDS Red N1	
49	pEGFP LUC	
50	pRL-CMV	
51	pEGFP-N1	
52	Baculovirus vectors	pVL 1392
53	Yeast vectors	pLexA
54		pTK2

Hosts list

NO.	Hosts	strains
1	Agrobacterium tumefaciens	<i>Agrobacterium tumefaciens</i> (AGL-1)
2		<i>Agrobacterium tumefaciens</i> (EHA 101)
3		<i>Agrobacterium tumefaciens</i> (EHA 105)
4		<i>Agrobacterium tumefaciens</i> (GV 3101)
5		<i>Agrobacterium tumefaciens</i> (LBA 4404)
6		<i>Agrobacterium tumefaciens</i> (2656R)
7		<i>Agrobacterium tumefaciens</i> (58R)
8	Escherichia coli	<i>Escherichia coli</i> (DH5 α)
9		<i>Escherichia coli</i> (JM 109)
10		<i>Escherichia coli</i> (XL1 Blue)
11		<i>Escherichia coli</i> BL21
12		<i>Escherichia coli</i> BL21(pLys5)
13		<i>Escherichia coli</i> (JM 107)
14		<i>Escherichia coli</i> (GM 2163)
15		<i>Escherichia coli</i> (origami)
16		<i>Escherichia coli</i> (DB3.1)
17	Yeast	<i>Pichia pastoris</i> (GS115)
18		<i>Pichia pink</i> (strain4)
19		G2DL (1105)

Molecular biology kits

IBRC suggests you trying IBRC's DNA extraction kits and its ultra pure Taq DNA polymerase. You enable to isolate the various types of DNA such as genomic DNA, plasmid and PCR products from various types of biological material such as blood, plant, gram-negative or gram-positive bacteria, cultured cells and animal tissues with IBRC's silica column-based DNA extraction kits. Due to using of the qualified silica column and raw material and the effective formulation of the buffers, you can experience the best quality of extracted DNA with sufficient amount of it; while, you have saved your time and money. The extraction procedure with the IBRC's DNA extraction kits is very easy and delightful.

Besides, we proud to produce the ultra pure Taq DNA polymerase which can be passed very sensitive tests in purity and yield. Our non-genomic DNA contaminant Taq DNA polymerase is suitable for every PCR amplification or identification experiments even for all types of bacteria.

Here, you can see the list of our molecular biology grade products:

- Plant genomic DNA extraction kit (Cat. no.: MBK0011)
- Blood and cultured cell genomic DNA extraction kit (Cat. no.: MBK0021)
- Gram positive bacteria genomic DNA extraction kit (Cat. no.: MBK0031)
- Gram negative bacteria genomic DNA extraction kit (Cat. no.: MBK0041)
- Plasmid DNA extraction kit (mini-prep) (Cat. no.: MBK0051)
- Gel extraction and enzymatic reaction purification kit (Cat. no.: MBK0061)
- PCR purification kit (Cat. no.: MBK0071)
- ◆ **Taq DNA polymerase enzyme (500 U)(Cat. no.: MBE0100)**

Training Affairs

● **103**-105

Department of Education

Because biology will continue into the 21st century as a major frontier of science, students should understand biology, not only for its own sake, but because of the need to take informed positions on some of the practical and ethical implications of humankind's capacity to tinker with the fundamental nature of biology".

The rapid change in science of biology is creating opportunities for education. It is important that this education help students understand the need to obtain information from more than one technique to solve a problem. Consequently, to perform more complicated of this task, we designed more than 100 different short term training courses and nearly 2700 students are educated till now.



Plant bank training courses

- Plant cytogenetics (Mitosis & C-banding)
- Techniques for isolation and analysis of phytochemical compounds (TLC and HPLC)
- Techniques for measuring antioxidant activity in biological systems (Enzymatic and non enzymatic)
- Application of molecular markers in plant tissue culture
- Specialized training of agriculture and plant sciences
- Principles and methods of plant cell, tissue and organ culture
- SDS -PAGE of proteins and PAGE zymography

Molecular bank training courses

- Bioinformatic
- Application of molecular technique, PCR, RT-PCR
- Application of advance molecular technique , Multiplex PCR, SSCP, RFLP, SSR, AFLP, RAPD
- Application of bioinformatics in basic cloning systems
- Application of bioinformatics in advance cloning systems
- Sequence alignment
- Molecular phylogenetic analysis
- Genetic engineering and gene cloning

Human and animal cells bank training courses

- Animal and human cell culture (primary cell culture and cell lines)
- Detection of Mycoplasma in cell culture by three methods: PCR, DNA staining, Culture isolation
- Preparation and quality controls of human and animal cell banks
- Authentication of cell lines including interspecies and interspecies cross contamination
- Immortalization of human B lymphocytes by EBV
- Good laboratory practice, Good cell culture practice and Good cell banking practice
- Designing and management of a cell culture laboratory and a cell bank
- Principles of clinical cytogenetic
- Magnetic cell separation techniques
- Methods of gene transfer to human cells
- Real-Time PCR techniques
- DNA & RNA extraction from different human & animal biological and food samples

Microorganism bank training courses

- Microbial collections: Methods of long-term preservation of microorganisms
- Freeze-Drying/Lyophilization methods for long-term preservation of microorganisms
- Cryopreservation methods for long-term preservation of microorganisms
- Standard methods for identification of novel microbial taxa
- Thin layer chromatography
- Methods of molecular identification of microorganisms
- Bioinformatics and phylogenetic analysis of bacteria
- DNA extraction from environmental samples
- MLSA techniques for identification of microorganisms

General short training courses

- Biostatistics
- SPSS(Basic)
- SPSS(Advance)
- Statistical Software: Minitab, SAS, R
- Research methodology
- EndNote
- Working with animal lab
- Writing and publishing a scientific paper
- Applied basic technical methods used in medical diagnostic laboratory
- Applied advance technical methods used in medical diagnostic laboratory

Research Affairs

● **106**-107

Introduction

The office of research in Iranian Biological Research Center (IBRC) performs the executive and consulting activities to develop the research in biological sciences and genetic resources.

The office of research monitors the international and national projects that are defined in the Plants, Microorganisms, Molecular, and Cell banks. Research and development of the banks is supervised by the office as well.

At the moment about 40 researchers working in the IBRC banks helped to activate the office.

Activities of the Office of Research

1-Executive activities

The office of research has been involved in the Scientific and technical department to achieve:

- Preparation and management of research programs and projects in research field with considering demands and priorities and offering them to the scientific and technical deputy
- Planning and taking relevant measures in order to encourage and reinforce research inclination in scientific fields for encouragement and reinforcement of researchers.
- holding conferences and scientific symposiums
- making effort to remove research related issues of faculty member, students and lab.
- Drawing research project contract
- Following up fulfilment of research projects.
- Evaluation of research projects both quantitatively and qualitatively as well as presentation of them unto officials in charge.
- Preparation of regulations and required instructions for research affairs and proposing to related organizations
- Criticism and theory affairs and science production
- Establishment of critic centres, formation of software.
- Movement and science production.
- Representation of the achievements of faculty members and students to the symposiums and organizations and fulfillment of short term research courses, such as internship and research skills short-term research opportunities, workgroups, internships and research skills
- Establishment of science and research databases to facilitate and speed up research
- Preparation of annual and seasonal reports to monitor the achievements

2-Consulting related activities

- Projects, plans and graduate thesis projects are consulted and advised by the office of research.
- All project and plans conducted in this research center as well of thesis carried out are subject to consultation offered by this department.

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