

The **INDIGENOUS FOOD PLANTS** *of Ilocos Norte:*

Their Food, Health and Socio-economic
Potential

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SEARCA Seed Fund
for Strategic Research
and Training (SFRT) Program



*Implemented by the Mariano Marcos State University
Funded by the SEARCA- Seed Fund for Research and
Training (SFRT) Program*

Indigenous Food Plants

- ❑ Edible plant species native to an area or region
- ❑ Include:
 - *Cultivated* -landraces, primitive cultivars, native forms
 - *Wild sp.*
- ❑ FAO reports the use of IFPs as subsistence food (during famine and hunger season)



IFPs in Ilocos Norte

- ❑ For subsistence and survival in upland and remote communities
- ❑ No documentation done
- ❑ No formal initiative to conserve the IFPs and their habitat
- ❑ MMSU documented, identified and characterized the IFPs and their habitat in Ilocos Norte with the goal of promoting their conservation and utilization



Significance of the Research

- ❑ To be able to elaborate strategies & policies: need to know what resources exist
- ❑ Unveiling these species will aid in crafting and implementation of projects and strategies to hasten their potential

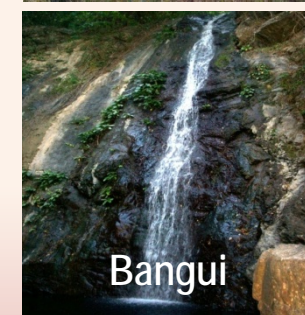
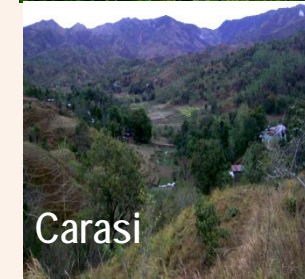
Methodology

1. Survey and Documentation of IFPs

Done in 7 upland and mountainous towns; 24 rural barangays

Selection Criteria:

a) remote and not readily reached by industrialization; b) low diffusion rate of new plant varieties; c) still cling to traditional agricultural practices, d) minimal development projects; and e) land use patterns have not changed much



Methodology

1. Survey and Documentation of IFPs

Key informant interview;
Focus group discussion
-Prior Informed Consent

Characterized identified IFPs
in situ & ex situ

Phytochemical Screening



Methodology

2. Biophysical Characterization

Geomorphology (Coordinates, elevation, slope) - GPS, GIS

Land use and vegetation

Water resources (stream network) - GPS

Climatic data – PAGASA Laoag & Aparri

Soil characteristics- standard analytical procedures

RESEARCH HIGHLIGHTS

Indigenous food plants are diverse in Ilocos Norte

- 46 species (27 families): Vine, liana, shrubs/undershrubs, trees, herbs, grass, palm

- Edible Parts

Leaftops

Fiddleheads

Flowers

Fruits

Tuber, roots

Grains



THE IDENTIFIED IEPs

A total of 46 plants, belonging to 27 families

The Ferns (3)

Blechnaceae
Cyatheaceae
Dryopteridaceae

The Monocots (7)

Araceae
Arecaceae
Dioscoreaceae
Graminae=Poaceae
Hydrocharitaceae
Taccaceae
Zingiberaceae

The Dicots (17)

Annonaceae
Apocynaceae
Boraginaceae
Brassicaceae
Compositae
Cucurbitaceae
Dilleniaceae
Leguminosae
Malvaceae
Molluginaceae

Moraceae
Olacaceae
Opiliaceae
Rosaceae
Solanaceae
Urticaceae
Vitaceae

THE IDENTIFIED IEPs

- WILD –majority

- DOMESTICATED

Momordica cochinchinensis (Sugod-sugod)

Telosma procumbens (Kapas-kapas)

Schismatoglottis sp. (Bilagot, lanipao)

Solanum lycopersicum (Botbotines)

S. lasiocarpum (Balbalosa)

Capsicum frutescens (Siling-labuyo)

C. annum (Libokeg)

- TRADITIONAL/LANDRACES

Upland Rice & Taro

Vegetable Crops

33 plants - for vegetable dishes: salad, viand
2^o ingredient, flavoring, spice, garnishing

Solanum lasiocarpum

Telosma procumbens

Schismatoglottis sp.

Champeria manillana

Mollugo verticillata

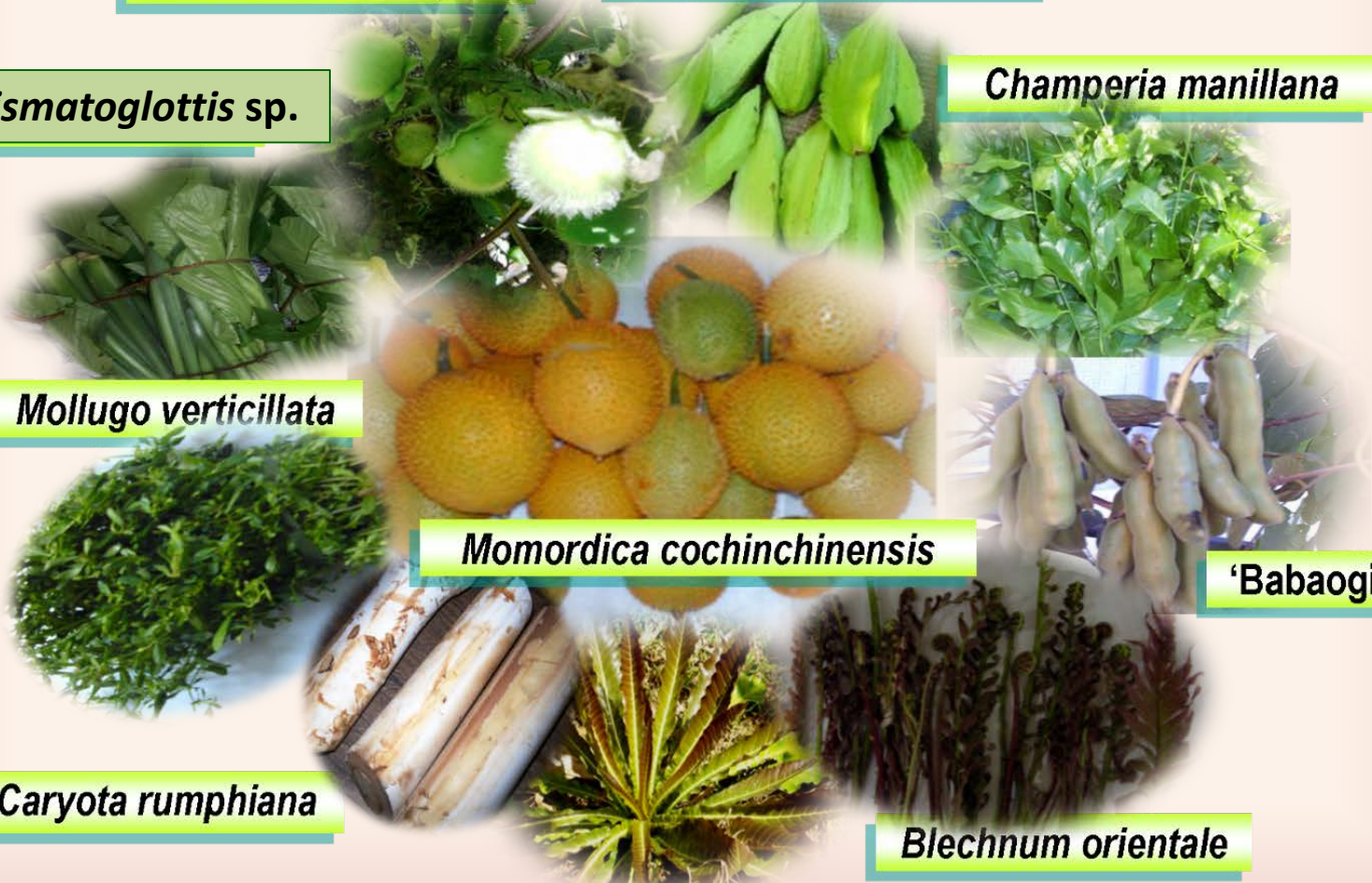
Momordica cochinchinensis

'Babaoging'

Caryota rumphiana

Blechnum orientale

Ficus pseudopalma



Root and Tuber Crops

- delicacy or snack: boiled, guinatan



Dioscorea luzonensis



*Tacca
leontopetaloides*



*Colocasia
esculenta*



*Dioscorea esculenta
subsp. spinosa*

Fruit Crops

Edible fruits, eaten raw when ripe

Uvaria rufa



Rubus rosaefolius

Upland Rices

Traditional varieties w/ variety of color, aroma & glutinous char.



Ethnobotanical Evidences

- People's familiarity of the plants dating back since the olden days of their forefathers,
- Long history of continued utilization,
- Presence of developed recipes and methodologies in cooking/preparation

-Indicate that the plants have become an integral part of their daily diet

Confirm that the identified IFPs play a vital role in the lives and subsistence of the people in the study sites

Source of knowledge

	%
When is IFP learned	
Since childhood	95
15-30 years ago	5
From whom learned*	
Forefathers	81
Neighbors	52
Through experience	17
DA Technicians	0
University	0

*-multiple answer

Perception Level on IFPs' Importance

Importance/Use*	Perception level
Provide more food Provide nutrition Provide additional income/ Provide employment	Strongly agree Strongly agree Strongly agree
Has ornamental values Used as animal feedstuff Has cultural significance	Agree Agree Agree
Used in ritual	Moderately disagree

*-multiple answer

Indigenous knowledge ... Ethnotaxonomy

Reasons for using/consuming IFPs

Reason*	%
Easily available in the area/locality	97
Abundant	97
Delicious and love the taste	97
Nutritious	95
Used to them	6
No chemical spray (less health hazard)	6
Practical/economical (no expense, just mere collecting)	2
Can cure sickness	1

*-multiple answer

Wild gathering & selling IFPs

	%
Wild gathering?	
Yes	97
No	3
Selling?	
Yes	84
No	16
Selling Place*	
Village/downtown market	97
Neighborhood	62
Market outside town	13
Farmgate/ <i>kumprador</i>	4

*-multiple answer

Phytochemical Screening

2° Metabolite	Present in	Function
Coumarins	39	Anti-coagulant, anti-fungi, anti-tumor, anti-cancer, immunostimulant, anti-inflammatory
Flavonoids	44	Anti-oxidant, Anti-inflammatory, anti-viral, anti-microbial,, anti-cancer, anti-tumor
Tannins	23	Anti-oxidant, anti-septic, anti-inflammatory, anti-tumor, anti-diarrhoea, haemostatic
Steroids	6	Anti-inflammatory, sedative, insecticidal, cytotoxic
Terpenoids	45	Anti-oxidant, anti-cancer, anti-malarial, anti-ulcer, hepaticidal, antimicrobial
Phenol		Anti-oxidant, anti-cancer, anti-tumor
Xantho- proteins	46	Photoprotective
Alkaloids	24	Anti-oxidant, anti-microbial, analgesic, stimulant
Saponins	42	Laxative, hypolipodemic, anti-coagulant

Some Unique Species

Solanum lasiocarpum

Balbalosa, Bisula



Pinakbet

Ethnobotany: Young fruits for pinakbet; often served to local and foreign tourists in Adams, Ilocos Norte.

Schismatoglottis sp.

Bilagot, Pikaw (Itn.)



Guinataang Bilagot

Ethnobotany: For vegetable dish cooked with fish paste, cocomilk, dried fish or *tapang-alingo*. Considered a unique delicacy in Adams. Sent/brought abroad in dried form.

Some Unique Species

Momordica cochinchinensis
Sugodsugod



Sautéed dish

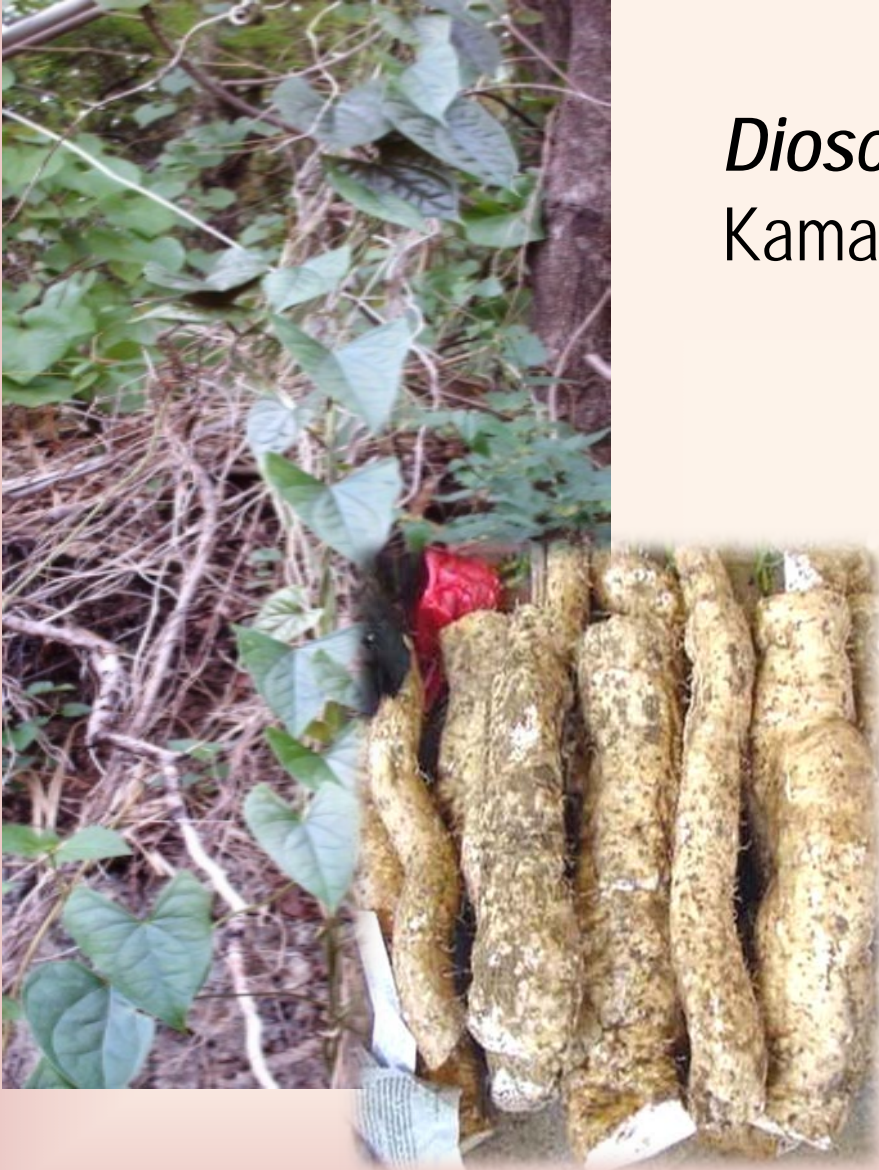
Ethnobotany: Young fruit for viand, tops for salad and viand. *Fruits high in lycopene and beta-carotene*

Telosma procumbens
Kapaskapas, Sabiddokong



Ethnobotany: Flowers and young fruit for vegetable viand

Some Unique Species



Dioscorea luzonensis
Kamangeg

Ethnobotany: Tuber favorite for guinatan, boiled snack, cooked as viand with fish paste and leafy and other vegetables.

IFP HABITATS

Parameters	Habitat A (HA)	Habitat B (HB)	Habitat C (HC)
Collection sites	Carasi	Adams, Nueva Era, Carasi, Banna, Dumalneg	Bangui, Pagudpud, Vintar, Nueva Era, Carasi & Dumalneg
Elevation	1024.35 ±65.96	289.34 ±74.56	103.50 ±38.50
Slope	Steep	Level to steep	Level to steep
Land use	Pine type forest	Molave forest (67%), dipterocarp forest, grassland	Upland farms, molave forest, grassland & miscellaneous, lowland farms, dipterocarp
Soil type	Umingan	Luisiana (50%), Umingan, Cervantes, Bantog, Faraon	San Fernando (40%), Annam, Cervantes, Faraon, Umingan, Maligaya
ph	5.13 ±0.17	5.72 ±0.89	6.12 ±0.63
OM	2.51 ±0.95	1.59 ±0.66	1.69 ±0.62
Total N	0.13 ±0.05	0.13 ±0.05	0.08 ±0.03
Climate	Semi-Type 2	semi-Type 2 (54%); Type 1 (46%)	Type 1 (80%), semi-Type 2 (20%)
IFP's	<i>Ficus minahasse</i> & <i>Rubus rosaefolius</i>	24 IFP's (majority are <i>D. luzonensis</i> , <i>Uvaria sp.</i>)	29 IFP's (majority are <i>C. esculenta</i> , <i>B. luzonica</i> , <i>T. procumbens</i> ,

Site-Specific IFPs

Edible Ferns & Wild Raspberry

Mid to high elevation and cool areas of Adams and Carasi



Solanum lasiocarpum

Moist and cool including stony areas of Adams and Bangui



Uvaria rufa

Various ecosystems in Carasi



Schismatoglottis sp.

All collection sites along walls of waterfalls or reservoir



Ficus minahasse

Ponds and bodies of water in mid to high elevation areas of Adams, Nueva Era and Carasi



Dioscorea sp.


All collection sites except sites with aquatic soil moisture regime *i.e.* Adams



POLICY RECOMMENDATIONS

- ❖ **Academe and R&D institutions should undertake:**
 - Proactive search on nutritive components of IFPs as well as development of new recipes and processed products;
 - adaptability and domestication trial on wild plant varieties;
 - improvement of cultural management for increased productivity;
 - Wider IEC on the importance of IFPs and how people can help in conserving them
- ❖ **The Philippine Department of Education should integrate IFPs on gardening activities** of both elementary and high schools in the province

POLICY RECOMMENDATIONS

-  **Promulgation of local (municipal or provincial) policies and ordinances on:**
 - Identification and conservation of endemic or rare plant species' habitats,
 - Banning massive collection and 'export' of unique species;
 - Integrating IFPs and institutionalization of barangay and home gardens in all municipal Clean and Green Programs, and
 - Establishment of community genebanks or seedbanks.

RDC-1 RESOLUTION No. 7 s. 2017



REGIONAL DEVELOPMENT COUNCIL – ILOCOS REGION

C/O NEDA REGIONAL OFFICE 1

EXCERPT FROM THE MINUTES OF THE 1ST REGULAR RDC-1 FULL COUNCIL MEETING HELD ON 28 MARCH 2017 AT OASIS COUNTRY RESORT, SAN FERNANDO CITY, LA UNION

RDC 1 Resolution No. 7, s. 2017

ENJOINING THE DEPARTMENT OF EDUCATION REGION 1, THE ACADEME AND R&D INSTITUTIONS IN THE PROVINCE OF ILOCOS NORTE, THE PROVINCE OF ILOCOS NORTE, AND THE MUNICIPALITIES OF ADAMS, BANGUI, NUEVA ERA, VINTAR, PAGUDPUD, DUMALNEG, AND CARASI, ILOCOS NORTE, TO CONSIDER AND TAKE NECESSARY ACTIONS ON THE POLICY RECOMMENDATIONS OF THE SURVEY AND CHARACTERIZATION OF INDIGENOUS FOOD PLANTS (IFPs) AND THEIR HABITAT IN ILOCOS NORTE, PHILIPPINES

WHEREAS, the Regional Development Council 1 (RDC 1) recognizes the crucial role of research in addressing development issues and concerns;

WHEREAS, the Regional Research Committee (RRC 1) under the RDC 1 formulated the Research-based Policy Recommendations Process in CY 2015 to strengthen the link between research and policy formulation;

WHEREAS, the Research-based Policy Recommendations Process was implemented in CY 2016 through the RRC 1 as the clearing house of research papers, and spearheaded the screening and evaluation process consists of paper review and the panel review based on criteria set in the guidelines;

WHEREAS, a total of 34 papers from State Universities and Colleges (SUCs) and Private Higher Institutions (PHEIs) in the region were received by the RRC 1 and were subjected to initial screening;

WHEREAS, out of the 34 papers submitted, 10 papers were identified to be aligned with the RRA and were reviewed, but only 2 papers underwent panel review;

WHEREAS, the Survey and Characterization of Indigenous Food Plants and their Habitat in Ilocos Norte, Philippines authored by Menisa A. Antonio, Rodel T. Utrera, Epifania O. Agustin, Dionisio L. Jamias and Araceli J. Badar of Mariano Marcos State University (MMSU) passed the last screening process;

WHEREAS, the study was presented in the Regional Research Colloquium in December 2016 as part of the process in disseminating the results of researches which undergone the screening and evaluation of the RRC 1;

WHEREAS, for the said research to serve as basis for policy decision of the RDC 1, the authors also presented the results of their study during the 1st Quarter Meeting of the Economic Development Sectoral Committee (EdSeCom) on March 22, 2017;

WHEREAS, the EdSeCom concurred and adopted the policy recommendations proposed in the study through EdSeCom Resolution No. 7 s, 2017;

NOW THEREFORE, in consideration of the above premises, on motion duly seconded **BE IT RESOLVED, AS IT IS HEREBY RESOLVED**, to enjoin the concerned development partners to consider and take necessary actions on the following policy recommendations in the study:


Concerned Entity	Policy Recommendations
Academe and R&D Institutions	<ul style="list-style-type: none">Proactive search on nutritive components of IFPs as well as development of new recipes and processed products;Adaptability and domestication trial on wild plant varieties;Improvement of cultural management for increased productivity;Wider IEC on the importance of IFPs and how people can help in conserving them
Provincial Government of Ilocos Norte and the municipalities of Adams, Bangui, Nueva Era, Vintar, Pagudpud, Dumalneg, and Carasi	<i>Promulgation of local policies and ordinances on:</i> <ul style="list-style-type: none">Identification and conservation of endemic or rare plant species' habitats,Banning massive collection and 'export' of unique species;Integrating IFPs and institutionalization of barangay and home gardens in all municipal Clean and Green Programs, andEstablishment of community genebanks or seedbanks.
Department of Education	<ul style="list-style-type: none">Integrate IFPs on gardening activities of both junior and senior high schools in Ilocos Norte

RESOLVED FURTHER, that the concerned development partners to provide feedback to the RDC 1 on their actions taken on the aforementioned policy recommendations and for the RDC 1 secretary through the RRC 1 to monitor the status of actions taken;

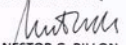
RESOLVED FINALLY, to provide copies of this resolution to Department of Education Region 1, the academe and R&D Institutions in the province of Ilocos Norte, the Province of Ilocos Norte and the municipalities of Adams, Bangui, Nueva Era, Vintar, Pagudpud, Dumalneg, and Carasi, Ilocos Norte for their action;

APPROVED, this 28th day of March 2017 at the Oasis Country Resort and Hotel, San Fernando City, La Union.

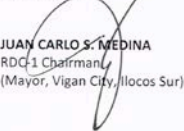
CERTIFIED TRUE AND CORRECT:


CAROLINE M. CASTRO
RDC-1 Acting Secretary,
(NEDA RO1 Office Caretaker)

ATTESTED BY:


NESTOR G. RILLON
RDC-1 Vice-Chairman
(NEDA RO1 Regional Director)

CONCURRED BY:


JUAN CARLO S. MEDINA
RDC-1 Chairman
(Mayor, Vigan City, Ilocos Sur)

For more information

SEAMEO SEARCA Policy Brief Series
2010 - 3

Indigenous Food Plants (IFPs) for Increased Food Sufficiency in Ilocos Norte, Philippines!
Menisa A. Antonio, Rodel T. Utrera, Epifania O. Agustin, Dionisio L. Jamias, Araceli J. Badar, and Miriam E. Pascua

This paper presents the findings of a study on IFPs with emphasis on indigenous food plants (IFPs) found in the province of Ilocos Norte, Philippines. Through a research grant from the First Food for Research and Training (FFRT) program of SEARCA, the Ilocos Norte State University (INSSU) conducted...

Abstract

Indigenous Food Plants (IFPs) are a rich source of nutrients and medicinal properties. They are often underutilized and their genetic diversity is being lost. This study aims to document the diversity of IFPs in Ilocos Norte, Philippines, and to explore their potential for food security and income generation. The study was conducted in Ilocos Norte, Philippines, and involved a survey of IFPs in various parts of the province. The results of the survey are presented in this paper.

Introduction

Indigenous Food Plants (IFPs) are a rich source of nutrients and medicinal properties. They are often underutilized and their genetic diversity is being lost. This study aims to document the diversity of IFPs in Ilocos Norte, Philippines, and to explore their potential for food security and income generation. The study was conducted in Ilocos Norte, Philippines, and involved a survey of IFPs in various parts of the province. The results of the survey are presented in this paper.

SEARCA Southeast Asian Regional Center for Graduate Study and Research in Agriculture

Indigenous Food Plants (IFPs) for Increased Food Sufficiency in Ilocos Norte, Philippines

Project Objectives

- To document the diversity of IFPs in Ilocos Norte, Philippines.
- To explore the potential of IFPs for food security and income generation.
- To develop a catalog of IFPs in Ilocos Norte, Philippines.
- To promote the use of IFPs in food and agriculture.

Project Activities

- Conducted a survey of IFPs in Ilocos Norte, Philippines.
- Documented the diversity of IFPs in Ilocos Norte, Philippines.
- Explored the potential of IFPs for food security and income generation.
- Developed a catalog of IFPs in Ilocos Norte, Philippines.
- Promoted the use of IFPs in food and agriculture.

CATALOG of *Indigenous Food Plants in Ilocos Norte*
Menisa A. Antonio, Epifania O. Agustin, Araceli J. Badar

The catalog contains 100 entries of indigenous food plants found in Ilocos Norte, Philippines. Each entry includes a photograph of the plant, its scientific name, and a brief description of its uses. The plants are grouped into 15 families, including Cucurbitaceae, Solanaceae, and Fabaceae.

CUCURBITACEAE

Momordica cochinchinensis (Lour.) Spreng
Sageo sagao, Pung pang, Ilo (Ilo), Spang pang, Cochinbin pang

Momordica cochinchinensis (Lour.) Spreng

Many plant genetic resources (PGR) are disappearing at an alarming rate as a result of man-made activities and natural phenomena. Even more so, the loss of genetic diversity of plant species is a global concern. The genetic erosion is reported to be significant in the adverse effects of climate change.

This study is aimed at safeguarding the remaining PGR to ensure biodiversity for the next generation. It focuses on documenting the diversity of indigenous food plants in Ilocos Norte, Philippines, and to explore their potential for food security and income generation. The study was conducted in Ilocos Norte, Philippines, and involved a survey of IFPs in various parts of the province. The results of the survey are presented in this paper.

SEAMEO SEARCA

SEARCA: Agriculture & Development Discussion Paper Series No. 2010-3

Survey and Characterization of Indigenous Food Plants in Ilocos Norte, Philippines
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