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AN ENUMERATION OF LICHENS FROM HIMACHAL PRADESH

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ABSTRACT

The paper presents an enumeration of 309 species of lichens so far known from Himachal Pradesh, based on the published literature and identified lichen specimen preserved at National Botanical Research herbarium (LWG).

Key Words Lichens, Himachal Pradesh

INTRODUCTION

Himachal Pradesh (Figure 1) (32.29°N and 76.10°E), a hill state of Western Himalayas, though smaller in its area (55,673 sq. km) but rich in terms of natural wealth and biodiversity. Three fourth of the state is covered by the Himalayan hill range. It is bounded in north by the Indian state of Jammu and Kashmir, on the east by the Chinese territory and Garhwal hills of Uttar Pradesh, on the south by sub-hill regions of Uttar Pradesh and Haryana and on the west by the plains of Punjab. The altitude varies from 244 m above mean sea level in area bordering Uttar Pradesh and Punjab plains to 6750 m in trans Himalayan zone along Lahaul, Spiti and Chini valleys. The annual precipitation in the state ranges from 600 mm in dry mountainous tract to 1275 mm in moist humid hill range, a part of which falls as snow during months of December to March. The temperature fluctuation during summer is 33°c to 14°c and in winter 15°c to appreciably negative. The geographical location and climatic condition of the state has made it rich in biodiversity. The natural vegetation in the state consists of roughly 22000 sq. km of area covered with forests, reverine, scrub vegetation and high altitude grass land (Singh 1999).

Himachal Pradesh is one of the lichen rich regions of Himalayas (a hot spot of lichen diversity in India). Awasthi and Höeg in 1952 had collected a large number of lichens from the Kangra, Takshi, Chandra, Kulu, Pin and Spiti vallies of this area and published an account of lichens from Shimla, Spiti and Chandra valley in 1953, respectively. All the collections so far made from the state were cursory or casual, except the recent one by Upreti (1999), from Greater Himalayan National Park (GHNP), Kullu district in which the Jiwanal, Sainj and Thirthan vallies were intensively explored for collection of more than 600 lichen specimens. Presence of 192 species belonging to 65 genera and 31 families of lichens in GHNP, a comparatively smaller area of Himachal Pradesh, clearly proves the lichen richness of the state.

The present communication is the review of earlier work on lichens of Himachal Pradesh, based on consultation of herbarium material preserved at National Botanical Research Institute (LWG), Lucknow and the available published literature. The available inventory of lichens from the present

study will be a record for carrying out biodiversity studies in the area in future.

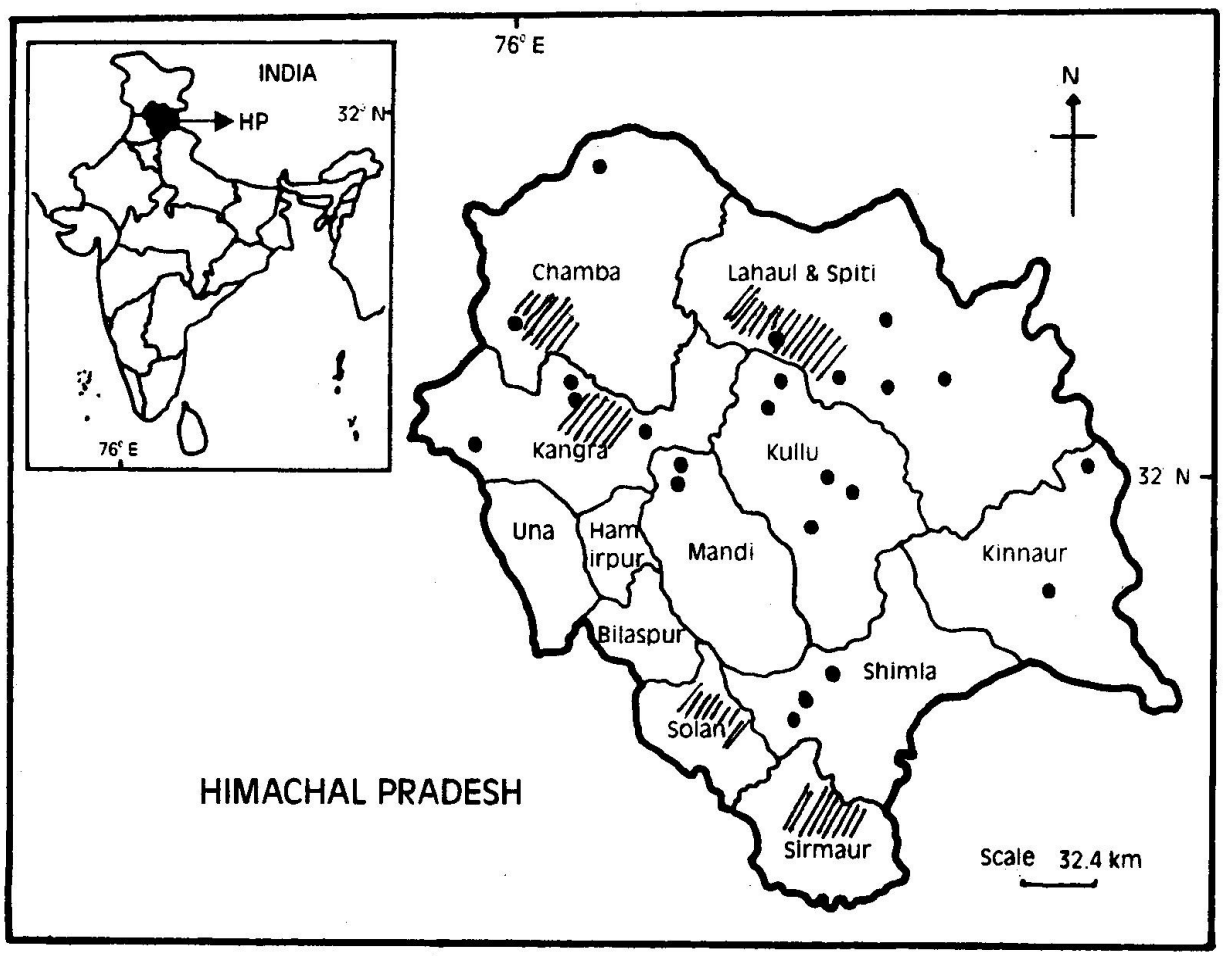

Figure 1. Map of Himachal Pradesh showing different localities of earlier lichen collections.

OBSERVATIONS

The study is based on the lichen specimens collected by Höeg and Awasthi in 1952, Awasthi and Dange in 1975, Upreti in 1999, and others which are currently housed in the NBRI herbarium (LWG). The inventory provided includes the details of species, family, locality, altitude, date of collection and name of the collector. The recent lichenological literature by Egan (1987) regarding the name changes of certain taxa was applied.

DISCUSSION AND CONCLUSION

Out of 1100 identified specimens of lichens preserved in NBRI herbarium and lichen species mentioned in literature from Himachal Pradesh area a total of 309 species belonging to 82 genera and 35 families of lichens were recorded.

It is clear from figure 2 that GNHP area records maximum number of lichen species probably due to its intensive exploration while other areas appears to be more or less poorly surveyed.

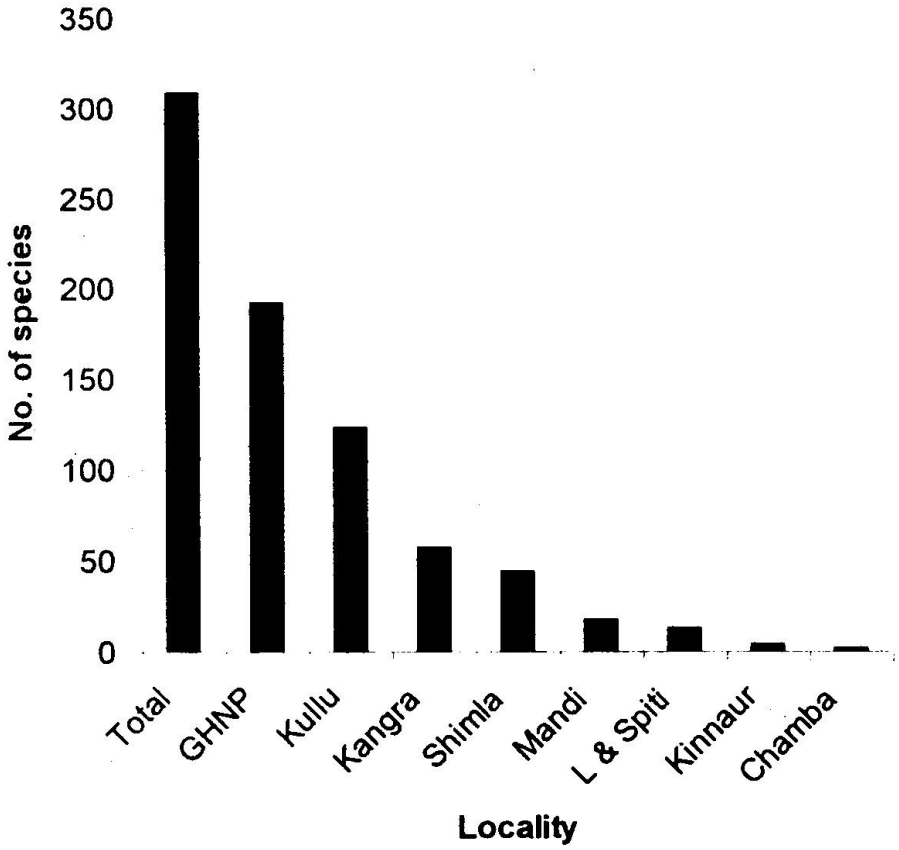

Figure 2. Distribution of lichen species in different regions of Himachal Pradesh*

* Based on consultation of herbarium material and published literature

It is clear from this study that out of 12 districts of Himachal Pradesh absolutely no collection or records of lichens from 5 districts are available, while few areas of Kullu, Lahul and Spiti, Kangra, Mandi, Chamba, Shimla and Kinnaur districts were poorly explored lichenologicaly. The diverse ecological habitats, altitudinal range and vegetation of the state are well suited for the luxuriant growth of lichens. Further extensive and intensive survey of the different districts will definitely add a large number of taxa to the present list and only after complete exploration of all the 12 districts a more clear picture about the status of lichen diversity of this state will be available. A comparison of the past and present lichen species recorded from the same localities will be helpful in estimating extent of change in the microclimatic condition of the habitats.

The species and genera are arranged alphabetically within the different families. The details of lichen species and their distribution in Himachal Pradesh is presented in table 1.

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Table 1: Distribution of lichen species in Himachal Pradesh

Family and name of the species	Localities							
	CHNP	Chamba	Kangra	Kinnaur	Kullu	L& Spiti	Mandi	Shimla
Acarosporaceae								
Acarospora bullata **Anzi**						+		
Acarospora fusca **B. de Lesd.**	+							
Acarospora schleicheri **(Ach.) Massal.**	+							
Acarospora smaragdula **(Wahlenb. in Ach.) Massal.**	+							
Acarospora strigata **(Nyl.) Jatta**	+							
Acarospora superans **Magnusson**	+							
Acarospora **species**	+							
Arthoniaceae								
Arthothelium chiodectoides **(Nyl.) Zahlbr.**	+							
Bacidiaceae								
Bacidia medialis **(Tuck. in Nyl.) Zahlbr.**	+							
Bacidia millegrana **(Taylor) Müll. Arg.**	+							
Bacidia nigrofusca **(Müll. Arg) Zahlbr.**	+							
Bacidia psorina **(Nyl. in Hue) Pant & Awasthi**					+			
Bacidia rosella **(Pers.) de Not.**					+			
Bacidia rubella **(Hoffm.) Massal.**	+				+			
Buelliaceae								
Buellia aethalea **(Ach.) Th. Fr.**								+
Buellia cfr disciformis **(Fr.) Mudd**								+
Buellia cfr sororioides **(Enchs.) Gum. Mon**								+
Buellia montana **Magnusson**					+			+
Buellia polyspora **(Willey in Tuck.) Vainio**	+							
Buellia punctata **(Hoffm.) Massal.**					+			
Buellia substigmea **S. Singh et Awasthi**	+				+			

Caliciaceae				
***Calicium adspersum* Pers.**			+	
Candelariaceae				
***Candelaria concolor* (Dickson) B. Stein**	+			
Catillariaceae				
***Catillaria nilgriensis* Pant & Awasthi**	+			
***Catillaria sikkimensis* (Müll. Arg.) Zahlbr.**	+			
Chrysothricaceae				
***Chrysothrix candelaris* (L.) Laundon**	+			
***Chrysothrix chlorina* (Ach.) Laundon**	+			
Cladoniaceae				
***Cladonia bacillaris* Genth**			+	+
***Cladonia cartilaginea* Müll Arg.**	+			
***Cladonia chlorophaea* (Flörke ex Sommerf.) Spern.**	+		+	
***Cladonia coccifera* (L.) Willd.**	+			
***Cladonia coniocraea* (Flörke) Sprengel**	+			
***Cladonia cornuta* (L.) Hoffm.**			+	
***Cladonia decorticata* (Flörke) Sprengel**	+			
***Cladonia didyma* (Fée) Vainio**			+	
***Cladonia fimbriata* (L.) Fr.**	+			
***Cladonia furcata* (Huds) Schrader**	+			
***Cladonia pyxidata* (L.) Hoffm.**	+			
***Cladonia rangiferina* (L.) Wigg.**	+			
***Cladonia ramulosa* (With.) Laudon**	+	+	+	
***Cladonia squamosa* Hoffm.**	+		+	
Coccocarpiaceae				
***Coccocarpia pellita* (Ach.) Müll. Arg. emend. R. Sant.**				
Collemataceae				
***Collema flaccidum* (Ach.) Ach.**			+	

Collema rugosum Krempelh							+	
Collema species	+							
Collema subconveniens Nyl.			+					
Collema subflaccidum Degel.		+		+		+		
Leptogium austroamericanum (Malme) Dodge	+							
Leptogium burnetiae Dodge	+		+		+			
Leptogium cyanescens (Ach.) Körber					+			
Leptogium delavayi |Hue	+							
Leptogium furfuraceum (Harm.) Sierk	+							
Leptogium menziesii (Schrad.) Tross.								+
Leptogium papillosum (B. de Lesd.) Dodge	+							
Leptogium pedicellatum P. Jørg	+							
Leptogium saturninum (Dickson) Nyl.					+			
Leptogium species	+							
Graphidaceae								
Graphis scripta (L.) Ach.	+				+			
Graphina species	+							
Phaeographis. subdividens (Leighton) Müll Arg.	+							
Phaeographis inusta (Ach.) Müll Arg.	+							
Phaeographina wattiana Müll Arg.	+							
Hymeneliaceae								
Aspicilia almorensis Räsänen	+					+		
Aspicilia alphoplaca (Wahlenb. in Ach.) Poelt & Leuck.	+		+		+	+		
Aspicilia caesiocinerea (Nyl. ex Malbr.) Arnold	+				+	+	+	
Aspicilia calcarea (L.) Mudd	+		+		+	+	+	
Aspicilia cinerea (L.) Körber						+		
Aspicilia dwaliensis Räsänen	+				+	+		
Aspicilia griseocinerea Räsänen	+		+		+			
Aspicilia maculata (Magnusson) Awasthi			+		+			

Aspicilia praeradiosa **(Nyl.) Poelt & Leuck.**		+			
Aspicilia verruculosa **Krempelh.**		+			
Lecanoraceae					
Lecanora albella **(Schreber) Rabenh.**			+		+
Lecanora allophana **(Ach.) Nyl.**			+		
Lecanora caesiorubella **Ach.**	+		+		
Lecanora camperstris **(Schaever) Hue.**					+
Lecanora cancariformis **(Hoffm.) Vainio**			+		
Lecanora cenisia **Ach.**			+		
Lecanora cinereofusca **Magnusson**		+	+		+
Lecanora concilianda **Vainio**		+			
Lecanora coronulans **Nyl.**	+				
Lecanora fimbriatula **Stirton**	+	+			
Lecanora garovaglii **(Körber) Zahlbr.**		+		+	
Lecanora gypsacea **(Sm.) Müll. Arg.**			+		
Lecanora indica **(Stirton) Zahlbr.**	+				
Lecanora intumescens **(Rebent.) Rabenh.**		+			
Lecanora muralis var dubeyi **(Müll. Arg.) Poelt**				+	
Lecanora muralis var muralis **Rabenh.**	+	+	+	+	
Lecanora pseudistera **Nyl.**			+		
Lecanora queenslandica **Knight ex Bailey**	+				
Lecanora rugosella **Zahlbr.**		+			
Lecanora somervelli **Paulson**	+				
Lecanora subimmersa **(Fée) Vainio**	+				
Lecanora sulphurenscens **Fée**		+			
Lecanora valesiaca **(Müll. Arg.) Stizenb.**			+		
Lecidella stigmatea **(Ach) Hertel & Leuck.**	+				
Rhizoplaca chrysoleuca **(Sm.) Zopf**			+	+	
Rhizoplaca melanophthalma **(Ram.) Leuck. & Poelt**		+		+	

Lecideaceae							
Lecidea lapicida **(Ach.) Ach.**							
Lecidea lithophila **(Ach.) Ach.**	+						
Lecidea **sp.**	+						
Psora himalayana **(Church Bab.) Timdal**	+						
Lichianaceae							
Ephebe **species**	+						
Peccania hoegii **Awasthi**			+			+	
Nephromataceae							
Nephroma helviticum **Ach. +**				+			
Pannariaceae							
Pannaria rubiginosa **(Ach.) Bory**	+						
Parmeliaceae							
Bulbothrix meizospora **(Nyl.) Hale+**							+
Canoparmelia aptata **(Kremph.) Elix & Hale**					+		
Cetraria delavayi **(Hue) Sato**	+						
Cetraria laureri **Krempelh.**	+						
Cetraria melaloma **(Nyl.) Krempelh.**	+						
Cetraria nigricans **(Nyl.)**	+						
Cetraria pallescens **Schaerer in Moritzi**	+						
Cetrelia braunsiana **(Müll. Arg.) Culb. & C. Culb**			+		+		
Cetrelia cetrarioides **(Delise ex Duby) Culb. & C. Culb**	+		+		+		
Cetrelia collata **(Nyl.) Culb. & C. Culb**			+				
Cetrelia olivetorum **(Nyl.) Culb. & C. Culb**			+		+		
Cetrelia pseudolivetorum **(Asah.) Culb. & C. Culb**					+		+
Everniastrum cirrhatum **(E. Fries) Hale**	+	+			+		+
Everniastrum nepalense **(Taylor) Hale**	+		+		+		+
Flavoparmelia caperata **(L.) Hale**	+				+		+
Flavopunctelia flaventior **(Stirton) Hale**	+			+	+		+

Flavopunctelia soredica **(Nyl.) Hale**	+	+	+	
Hypogymnia physodes **(L.) Nyl.**			+	
Hypogymnia tubulosa **(Schaerer) Havaas**			+	
Hypogymnia vittata **(Ach.) Parr.**	+		+	
Hypotrachyna crenata **(Kurokawa) Hale**	+			
Hypotrachyna scytophylla **(Kurok.) Hale**	+			
Hypotrachyna sublaevigata **(Nyl.) Hale**				+
Melanelia exasperatula **(Nyl.) Essl.**	+			
Melanelia infumata **(Nyl.) Essl.**		+		
Melanelia stygia **(L.) Essl.**	+			
Melanelia subargentifera **(Nyl.) Essl.**				
Melanelia vilosella **(Essl.) Essl.**			+	
Menegazzia terebrata **(Hoffm.) Massal.**	+		+	
Myelochroa aurulenta **(Tuck.) Elix & Hale**	+	+	+	+
Myelochroa rhytidodes **(Hale) Elix & Hale**				+
Nephromopsis leucostigma **(Lev. in Jacquem.) Awasthi**				+
Parmelia **meiophora Nyl.**	+	+	+	
Parmelia saxatilis **(L.) Ach.**	+			
Parmelia sulcata **Taylor**			+	
Parmelina muelleri **(Vainio) Hale**			+	
Parmelina tiliaceae **(Hoffm.) Hale**		+		
Parmelinella simplicior **(Hale) Elix & Hale**				+
Parmelinella wallichiana **(Taylor) Elix & Hale**	+		+	+
Parmelinopsis expallida **(Kurokawa) Elix & Hale**	+			
Parmotrema andinum **(Müll. Arg.) Hale**			+	
Parmotrema austrosinense **(Zahlbr.) Hale**	+			+
Parmotrema dilatatum **(Vainio) Hale**			+	+
Parmotrema hababianum **(Gyelink) Hale**			+	+

Parmotrema. latissimum **(Fr.) Hale**	+						
Parmotrema melanothrix **(Mont.) Hale**							+
Parmotrema mesotropum **(Müll. Arg.) Hale**							+
Parmotrema nilgherrense **(Nyl.) Hale**	+	+	+			+	+
Parmotrema praesorediosum **(Nyl.) Hale**	+	+		+			
Parmotrema pseudonilgherrense **(Asahina) Hale**	+			+			
Parmotrema reticulatum **(Taylor) M.Choisy**							+
Parmotrema stenophylla **(Ach.) Du R**					+		
Parmotrema tinctorum **(Nyl.) Hale**	+	+					+
Pseudoparmelia cinerascens **(Lynge) Hale**	+						
Punctelia borreri **(Sm.) Krog**	+	+		+			+
Punctelia rudecta **(Ach.) Krog**	+			+		+	
Punctelia subrudecta **(Nyl.) Krog**	+			+			
Rimelia reticulata **(Taylor) Hale & Fletcher**		+		+			+
Rimeliella subtinctoria **(Zahlbr.) Kurok**		+		+			
Xanthoparmelia tinctina **(Mahe & Gill.) Hale**	+	+		+			
Peltigeraceae							
Peltigera canina **(L.) Willd.**	+			+			+
Peltigera leucophelbia **(Nyl.) Gyelink**	+						
Peltigera dolichorhiza **(Nyl.) Nyl.**	+					+	
Peltigera horizontalis **(Huds.) Baumg.**				+			
Peltigera malacea **(Ach.) Funck**	+						
Peltigera microphylla **(Anders) Gyelnik**	+						
Peltigera polydactyla **(Necker) Hoffm.**	+		+	+			
Peltigera praetextata **(Flörke) Vainio.**	+			+			
Peltigera rufescens **(Weiss) Humb.**	+			+			+
Peltulaceae							
Peltula euploca **(Ach.) Poelt in Pisut**				+			
Pertusariaceae							
Ochrolechia harmandii **Vainio**	+						

Ochrolechia rosella **(Müll. Arg.) Vers.**	+		+		
Pertusaria acuta **Müll. Arg.**	+				
Pertusaria albescens **(Huds) Choisy & Wern in Wern**	+				
Pertusaria amara **(Ach.) Nyl.**			+		
Pertusaria melastomella **Nyl.**	+				
Pertusaria concinna **Erichsen**	+				
Pertusaria leucostoma **(Bernh.) Massal.**			+		
Pertusaria multipuncta **(Turner) Nyl.**	+				
Pertusaria pallidula **Stirton**	+				
Pertusaria pertusa **(Weigel) Tuck.**	+		+		
Pertusaria punctata **Nyl.**	+				
Pertusaria quassiae **(Fee) Nyl.**	+				
Pertusaria subochracea **Stirton**	+				
Pertusaria velata **(Turner) Nyl.**	+		+		
Phyciaceae					
Dimelaena oreina **(Ach.) Norman**			+		
Heterodermia diademata **(Taylor) Awasthi**	+	+	+	+	+
Heterodermia firmula **(Nyl.) Trevisan**		+	+		
Heterodermia himalayensis **(Awasthi) Awasthi**		+			
Heterodermia hypocaesia **(Yasuda) Awasthi**		+	+		
Heterodermia incana **(Stirton) Awasthi**	+				+
Heterodermia leucomela **(L.) Poelt**	+				
Heterodermia obscurata **(Nyl.) Vainio**			+		
Heterodermia pseudospeciosa **(Kurok.) Culb.**		+	+		
Heterodermia speciosa **(Wulf.) Mass.**			+		
Heterodermia togashii **(Kurok.) Awasthi**			+		
Phaeophyscia constipata **(Norrlin in Nyl.) Moberg.**	+				
Phaeophyscia endococcina **(Körber) Moberg.**	+				
Phaeophyscia hispidula **(Ach.) Moberg. ssp.**					

exornatula **(Zahlbr.) Poelt**			+	
Phaeophyscia hispidula **ssp. *hispidula* (Ach.) Essle.**	+	+	+	+
Phaeophyscia hispidula **ssp. *limbata* Poelt**	+			
Physcia aipolia **(Ehrh. in Hamb.) Fürur**			+	
Physcia caesia **(Hoffm.) Fürur**	+			
Physcia dilatata **Nyl.**	+	+		
Physcia dimidiata **(Arn.) Nyl.**				
Physcia tribacia **(Ach.) Nyl.**	+		+	
Physcia tribacoides **Nyl.**				
Physconia detersa **(Nyl.) Poelt**	+			
Physconia enteroxantha **(Nyl.) Poelt.**				
Physconia grisea **(Lam.) Poelt**			+	
Physconia muscigena **(Ach.) Poelt**		+		
Pyxine berteriana **(Fée) Imsh.**			+	+
Pyxine berteriana var. himalaica **Awasthi**				
Pyxine petricola **Nyl. in Comb.**				+
Pyxine sorediata **(Ach.) Mont.**			+	
Pyxine subcinerea **Stirton**			+	
Rinodina sophodes **(Ach.) Massal.**			+	
Rinodina strassii **Steiner em. Mayrhofer**		+		
Poridiaceae				
Porpidia albocaerulescens **(Wulfen) Hertel & Knoph in Hertel**	+	+		
Porpidia hydrophila **(Fr.) Hertel & Knoph in Hertel**	+			
Pyrenopsidaceae				
Thyrea pulvinata **(Schaerer) Massal.**		+		
Pyrenulaceae				
Anthracothecium assamiense **(Stirton) A. Singh**				+
Anthracothecium himalayense var. pseudohimalayense **(A. Singh) A. Singh**	+			

Anthracothecium oculatum Müll. Arg.					+	
Anthracothecium platystomum var. papillatum Singh & Upreti	+					
Anthracothecium platystomum var platystomum					+	
Anthracothecium thwaitesii (Leighton) Müll Arg.	+					
Clypeopyrenis species	+					
Polymeridium proponens (Nyl.) R. C. Harris		+				
Pyrenula albella Müll. Arg.	+					
Pyrenula immersa Müll. Arg	+				+	
Pyrenula immissa (Stirton) Zahlbr.	+				+	
Pyrenula introducta (Stirton) Zahlbr.	+				+	
Pyrenula oculata A. Signh & Upreti					+	
Pyrenula subglabriuscula Vainio	+					
Pyrenula subnitidella (Nyl.) Müll. Arg.	+					
Ramalinaceae						
Ramalina baltica Lettau			+			
Ramalina celastri (Sprengel) Krog & Swinse.	+		+			
Ramalina confusa Awasthi						+
Ramalina himalayensis Räsänen	+					
Ramalina pollinaria (Westr.) Ach.		+	+			
Ramalina roesleri (Hochst. in Schaerer) Hue	+					
Ramalina sinensis Jatta	+		+		+	+
Ramalina species	+					
Rhizocarpaceae						
Rhizocarpon alpicola (Anzi) Rabh.			+			
Rhizocarpon geographicum (L.) DC	+			+		
Rhizocarpon geographicum ssp. *lindsayanum Räsänen*		+				
Rhizocarpon macrosporum Räsänen		+				

Rhizocarpon sublucidum **Räsänen**			+	+	
Stereocaulaceae					
Stereocaulon himalayense **Awasthi & Lamb.**				+	
Stereocaulon foliolosum **Nyl.**				+	
Stereocaulon foliolosum var botryphorum **(Müll. Arg.) Lamb.**				+	
Stereocaulon foliolosum var strictum **(Bab.) Lamb.**	+			+	
Stereocaulon myriocarpum **Th. Fr.**		+			
Stereocaulon myriocarpum **ssp. *myriocapoides* (Nyl.) M. Lamb.**		+			
Stereocaulon pomiferum **Duvign.**	+				
Stictaceae					
Lobaria isidiophora **Yoshimura**	+				
Lobaria kurokawae **Yoshimura**	+				
Lobaria meridionalis **Vainio**	+				
Lobaria pindarensis **Räsänen**				+	
Lobaria pseudopulmonaria **Gyelnik**	+				
Lobaria retigera **(Bory) Trevisan**	+			+	
Lobaria scrobiculata **(Scop.) Gartner**					+
Sticta henryana **Müll. Arg.**	+				
Sticta limbata **(Sm.) Ach.**	+				
Sticta nylanderiana **Zahlbr.**	+				
Sticta platyphylloides **Nyl.**	+			+	
Sticta praetextata **(Räsänen) Awasthi in Joshi & Awasthi**					+
Teloschistaceae					
Caloplaca almorensis **(Räsänen) Awasthi**	+				
Caloplaca ferruginea **(Huds.) Th. Fr.**	+				
Caloplaca flavourbescens **(Huds.) Laundon**	+				
Caloplaca incongruens **(Stirton) Zahlbr.**	+				
Caloplaca pindarensis **(Räsänen) Awasthi**	+				

Caloplaca saxicola **(Hoffm.) Nordin**		+		+
Xanthoria candelaria **(L.) Arn.**			+	
Xanthoria elegans **(Link.) Th. Fr.**		+		+
Xanthoria fallax **(Heph.) DR**				
Xanthoria fallax var subsorediosa **(Räsänen) Awasthi**	+		+	
Xanthoria parietina **(L.) Fr.**	+			
Xanthoria sorediata **(Vainio) Poelt**			+	
Tephromelataceae				
Tephromela atra **(Huds.) Hefellner**		+		
Tephromela khatiensis **(Räsänen) Lumbsch**		+		
Thelotremataceae				
Diploschistes actinostomus **(Pers. in Ach.) Zahlbr.**	+		+	
Diploschistes. gypsaceus **(Ach.) Nyl.**	+			
Diploschistes dicapsis **(Ach.) Lumbsch**	+			
Diploschistes muscorum **(Scop.) R. Sant**	+			
Diploschistes scruposus **(Schreber) Norman**	+			
Umbilicariaceae				
Umbilicaria indica **Frey**		+		
Usneaceae				
Bryoria confusa **(Awasthi) Brodo & D. Hawksw.**	+			
Bryoria himalayana **(Mot.) Brodo & D. Hawksw.**	+			
Bryoria smithii **(DR.) Brodo & D. Hawksw.**	+			
Evernia mesomorpha **Nyl.**	+		+	
Sulcaria sulcata **(Lev.) Bystrek in Brodo & D. Hawksw.**	+			
Sulcaria virens **(Taylor) Bystrek in Brodo & D. Hawksw.**	+			
Usnea aciculifera **Vainio**	+			
Usnea eu mitrioides **Mot.**	+			

***Usnea himalayana* Bob.**	+							+
***Usnea longissima* Ach.**	+					+		
***Usnea orientalis* Mot.**	+							+
***Usnea perplexans* Stirton**						+		
***Usnea splendens* Stirton**	+					+		+
***Usnea subfloridana* Stirton**	+					+		
***Usnea subsoredida* Stirton**	+					+		+
***Usnea thomsonii* Stirton**	+							
Verrucariaceae								
***Catapyrenium lachneum* (Ach.) R. Sant.**	+							
***Dermatocarpon miniatum* (L.) Mann.**	+		+			+	+	
***Dermatocarpon moulinsii* (Mont.) Zahlbr.**								+
***Dermatocarpon vellereum* Zschacke**	+		+			+	+	
***Endocarpon pusillum* Hedwig.**						+		
***Staurothele clopima* (Wahlenb.) Th. Fr.**					+		+	
***Verrucaria acrotella* Ach.**	+							
Total 309 species	192	2	58	5	123	13	18	45