

CONTRIBUTIONS TO THE FLORA OF KANGRA VALLEY
PART I—DHARAMSHALA-PALAMPUR TRACT

S. K. KAPUR AND Y. K. SARIN

Regional Research Laboratory, Jammu Tawi

ABSTRACT

Systematic census of the flowering plants and ferns of the western portions of the Kangra valley of Himachal Pradesh has been done. Total number of species enumerated in this paper is 399 (Angiosperms 389, Gymnosperms 2 and Pteridophytes 8).

INTRODUCTION

Kangra Valley, running parallel to Dhauladhar range of West Himalayas is amongst the most picturesque places in India. The area is floristically rich, having certain special phytogeographical features where a number of plants such as *Shorea robusta*, *Stephania glabra*, *Toddalia asiatica* and *Garuga pinnata* commonly occurring in the adjoining eastward localities of Himachal Pradesh and Uttar Pradesh find their westernmost limit. It is surprising that no detailed floristic record of such an interesting area is available. The existing information consists of accounts of botanical explorations conducted by Gammie in 1894 and Parish and Hearsey, who included the tract during a botanical survey of Kangra, Kulu and Prabati valleys. Some information can also be had from certain regional floras especially those of Parker (1924), Bamber (1916) and Collett (1902); but these do not include all the plants of the flora of this area. A systematic enumeration of the flowering plants of the area has therefore been taken up. The present account deals with flora of Dharamshala-Palampur tract which roughly constitutes the administrative district of Kangra.

THE AREA OF STUDY

The tract is surrounded by Chamba,

Mandi, Una and Hamirpur districts of Himachal Pradesh in north, north-east and south-east respectively. Topographically, it can roughly be divided into two distinct areas *viz.*

1. Dharamshala-Mcleod ganj: It is situated on the lower reaches of a massive spur of Dhauladhar range, the area is highly mountainous ranging from 1500 m to 2500 m above mean sea level (a.s.l.).

2. Kangra-Palampur: It consists of the western portions of a strike valley which runs parallel to Dhauladhar range. The area is characterised with comparatively level ground and low ridges and ravines. The altitude ranges from 600 m to 1200 m (a.s.l.).

GEOLOGY AND SOIL

Geologically the area can be divided into Himalayan and sub-Himalayan zones. The Himalayan zone which is represented by Dharamshala-Mcleod ganj hills is composed of granite and unfossiliferous sediments of unknown origin. The sub-Himalayan zone on the other hand is composed of sediments for most part, of tertiary ages and also including some sub-recent deposits. Loam and clayloam are the dominant soil types of the area. The soils of the Kangra-Palampur valley are rich in organic matter and other plant nutrients. At higher elevations, however, these are deficient in mine-

ral composition due to frequent leaching by rains.

CLIMATE

Climatic conditions of the area are as varied as the topography. The temperature declines according to altitude. The mean temperature at Kangra town has been recorded as 10°C in winter, 21°C in spring, 27°C in summer and 20°C in autumn. Period between May to July is the hottest and is followed by monsoon rains during the months of July and August. The rainfall varies remarkably in different parts. The average rainfall exceeds 178 cms and in the southern parts to about 112 cms. Two or three weeks of mist and drizzle represent the monsoon in the area. Areas above 1500 m (a.s.l.) experience temperate climate with well defined zones. Some hill tops around Mcleod ganj get snowfall during winter.

VEGETATION

The tract is characterised by frequent changes in altitude ranging between 600 m and 2500 m (a.s.l.). The structure and composition of the vegetation is greatly affected by changing topography. The increasing habitation in the area has also played its part in denudation of natural forests and development of scrub and other forms of artificial vegetation. The vegetation of the area as such can be broadly grouped into forest vegetation and scrub formations in the cultivated tract.

Six major forest types have been recognised in the area. Each of these have its own range of altitudinal distribution.

1. *Mixed deciduous broad leaved forests*: These forests are encountered in certain protected areas in the lower reaches of the area of study extending from 600 m (a.s.l.) to about 1000 m (a.s.l.). The main constituents of these forests are *Salmalia malabarica*, *Terminalia arjuna*, *Anogeissus latifolia*, *Lannea coromandelica*, *Albizia chinensis*, *Kydia calycina*, *Emblica officinalis*, *Pyrus pashia* and *Wendlandia exerta*. In

cool moist situations along depressions and nallhas *Dalbergia emarginata*, *Ougeinia ougeinensis*, *Terminalia chebula* and *Acacia* species are increasingly encountered. The main shrubby elements in these forests are *Adhatoda vasica*, *Woodfordia fruticosa* and *Murraya koenigii*.

2. *Riverine mixed deciduous forests*: Kangra valley is full of nallhas and stream which remain dry during a major part of the year. The composition of forests along these nallhas is quite different than in other areas. *Acacia catechu* and *Dalbergia emarginata* dominate the tree stratum while *Ziziphus nummularia*, *Dodonaea viscosa* and tall species of *Saccharum* cover dry sandy gravelley beds of the stream.

3. *Subtropical Chilpine forests*: Extensive forests of Chilpine (*Pinus roxburghiana*) occur throughout the area at altitudes between 1000 m to 1600 m (a.s.l.) or more. In most of the areas specially towards the top of the hills the forests occur almost as a pure crop of Chilpine. The shrubs are few and are represented by *Carissa spinarum* and species of *Randia*, *Ziziphus* and *Berberis*.

4. *Euphorbia royleana scrub*: The vegetation consists of scattered growth of Cactus like trees of *Euphorbia royleana* and various shrubs of sub-tropical zone mentioned above. The forests are generally encountered on the slopes or towards the lower extremities of Chilpine forests where the Chilpine cover has been removed due to natural or biotic causes.

5. *Oak-coniferous forests*: In Dharamshala, Titarcha and Palampur the Oak (*Quercus leucotrichophora*) makes its first appearance at altitude between 1500 m and 1600 m (a.s.l.). At certain places quite an extensive area is covered with pure oak formation, chiefly on southern aspects between Dharamshala and Mcleod ganj. The other common components of oak forests are *Lyonia ovalifolia*, *Rhododendron arborescens*, *Pyrus pashia*, *Pistacia integerrima*

and species of *Sapium*, *Rhus* and *Cornus*. The temperate *Conifers viz. Cedrus deodara* and *Pinus wallichiana* are encountered in areas situated above 2000 m, though a few trees can be seen at lower elevations also especially in Palampur. In certain areas Chilpine forests are replaced immediately by *Pinus wallichiana*, *Cedrus deodara* forests. The shrubby element in oak-conifer forests is dominated by *Berberis lycium*, *Prinsepia utilis*, *Indigofera gerardiana*, *Rubus ellipticus*, *Rhamnus virgatus* and species of *Rosa*. *Hedera helix*, *Rosa moschata*, *Smilax parvifolia* and species of *Clematis* and *Cissus* are the usual climbers in these forests.

6. *Secondary scrub formations*: Area denuded of forest trees are occupied by secondary scrub formations in all the climatic zones studied. Such formations are most extensive in Palampur-Bajjnath tract where *Dodonaea viscosa*, *Berberis lycium*, *Carissa spinarum* and *Adhatoda vasica* are gregarious. *Mallotus philippenensis*, *Butea monosperma* are the common trees occurring among the shrubs at lower altitude, while higher up only a few trees of *Quercus leuotrichophora* and *Euphorbia royleana* can be seen scattered among dense thickets of *Berberis lycium* and *Prinsepia utilis*.

WEEDS OF THE AREA

The cultivated tract, in addition to having large areas under scrub formations abounds in weeds some of which are of recent introduction. *Fumaria parviflora*, *Capsella bursa-pastoris*, *Crotolaria albida*, *C. prostrata*, *Medicago denticulata*, *Silybum marianum*, *Solanum nigrum*, *Amaranthus spinosus*, *A. viridis*, *Chenopodium album*, *C. ambrosioides*, *C. botrys*, *Rumex dentatus* and *R. nepalensis* are the common weeds encountered in the area often in pure or mixed patches. The occasional plants along the road side on waste land and drains are *Raphanus sativus*, *Stellaria latifolia*, *Abutilon indicum*, *Sida rhombifolia*, *Oxalis corniculata*. *Lotus corniculatus*, *Melilotus*

indica, *Cassia occidentalis*, *Ageratum conyzoides*, *Gnaphalium indicum*, *G. luteo-album*, *Sonchus asper*, *S. oleraceus*, *Heliotropium strigosum*, *Evolvulus alsinoides*, *Datura stramonium*, *Solanum incanum*, *Euphorbia helioscopia*, *Echinops cornigerus*, *Cannabis indica* and *Rungia pectinata*. Plants like *Portulaca sativa*, *Bidens biternata*, *Blumea wightiana*, *Centipeda minima*, *Eclipta canadensis*, *Launaea nudicaulis*, *Siegesbeckia orientalis*, *Xanthium strumarium*, *Trichodesma indicum* and *Verbena bonariensis* are but rare.

A total of 399 species belonging to 297 genera and 88 families of Angiosperms, Gymnosperms and Pteridophyta collected from various localities within the area of study have been listed. The account of Poaceae in the area will be dealt separately. The specimens have been deposited in the Herbarium of Regional Research Laboratory, Jammu.

ENUMERATION ANGIOSPERMS RANUNCULACEAE

***Clematis grata* Wall.**

Palampur and Dharamshala, 800-2500 m ; common in open forest and shrubby places, Sept. 1974, S.K.K. 13347.

***Delphinium denudatum* Wall. ex Hook. f. & Th.**

Treund and Dharamshala, 1600-2500 m ; Oak-Coniferous forest, April 1964, Y.K.S. 10294.

***Ranunculus laetus* Wall. ex Hk. f. & Th.**

Palampur, 1300-2500 m ; fairly common along water courses, June 1974, S.K.K. 13164.

***R. muricatus* L.**

Palampur and Dharamshala, 1300-2500 m ; along water courses, April 1974, S.K.K. 12910.

***R. sceleratus* L.**

Palampur, ascending to 1600 m ; in shady, damp ravines, April 1974, S.K.K. 12907.

Thalictrum javanicum Blume

Dharamshala, Palampur and Baijnath, 1400-2500 m; Oak-Coniferous forest, June 1974, S.K.K. 13145.

MENISPERMACEAE

Cissampelos pareira L. var. **hirsuta** (DC.) Forman

Palampur, up to 1900 m; Coniferous forest, April 1974, S.K.K. 13008.

Stephania gabra (Roxb.) Miers

Dharamshala, 1100-1900 m; semi-deciduous forest, June 1974, S.K.K. 13196.

S. rotunda Lour.

Dharamshala, up to 1900 m; semi-deciduous forest, Aug. 1958, Y.K.S. 9641.

Tinospora cordifolia (Willd.) Miers

Dharamshala, up to 1900 m; semi-deciduous forest, Aug. 1971, Y.K.S. 13622.

BERBERIDACEAE

Berberis lycium Royle

Dharamshala and Palampur, 1000-2500 m; Oak-Coniferous forest, April 1974, S.K.K. 12903.

PAPAVERACEAE

Argemone mexicana L.

Kangra, up to 1600 m; cultivated and on waste ground, April 1974, S.K.K. 13078.

FUMARIACEAE

Fumaria parviflora Lamk.

Palampur, ascending to 1600 m; cultivated tract, April 1974, S.K.K. 12936.

BRASSICACEAE (CRUCIFERAE)

Arabis glabra Crantz.

Palampur, 1700-2500 m; cultivated tract, April 1974, S.K.K. 12944.

Capsella bursa-pastoris Moench.

Palampur, 1700-2500 m; cultivated tract 1974, S.K.K. 12944.

Coronopus didymus (L.) Sm.

Dharamshala and Palampur, up to 1600 m; cultivated and on waste ground, April 1974, S.K.K. 12913.

Nasturtium fontanum Aschers.

Dharamshala, up to 2220 m; common in fields and road sides, April 1974, S.K.K. 12937.

Raphanus sativus L.

Kangra and Palampur, up to 1600 m; wild and cultivated, April 1974, S.K.K. 12912.

Sisymbrium irio L.

Dharamshala and Palampur, 1500-2500 m; common in fields and road sides, June 1974, S.K.K. 13089.

S. strictum Hook. f. & Th.

Dharamshala and Palampur, 1500-2500 m; on waste ground, April 1974, S.K.K. 12918.

BIXACEAE

Flacourtia indica (Burm. f.) Merr.

Baijnath and Kangra, ascending to 1000 m; forest margins, Sept. 1974, Y.K.S. 9739.

F. jangomas Miq.

Baijnath and Kangra, ascending to 1000 m; forest margins, May 1971, Y.K.S. 10571.

POLYGALACEAE

Polygala chinensis L.

Palampur, up to 1600 m; moist places, June 1973, Y.K.S. 8444.

CARYOPHYLLACEAE

Cerastium vulgatum L.

Baijnath and Kangra, up to 2500 m; marshy places, June 1974, S.K.K. 13155.

Silene inflata Sm.

Palampur and Yol Cantt., up to 1600 m; cultivated tract, April 1974, S.K.K. 12935.

Stellaria latifolia Benth.

Palampur and Yol. Camp, upto 2500 m; common in fields and road sides, Sept. 1974, S.K.K. 13617.

S. media (L.) Cyril.

Palampur, up to 2500 m; moist and shady places, April 1974, S.K.K. 12905.

PORTULACACEAE

Portulaca sativa Haw.

Dharamshala and Treund, common, ascending to 2100 m, Oct. 1974, S.K.K. 13636.

HYPERICACEAE

Hypericum cernuum Roxb.

Palampur and Kangra; common in

shady, damp ravines, April 1974, S.K.K. 12953.

DIPTEROCARPACEAE

Shorea robusta Gaertn. f.

Dharamshala, occasional up to 1700 m; semi-deciduous forest, June 1974, S.K.K. 12932.

MALVACEAE

Abutilon indicum (L.) Sweet

Palampur and Kangra, upto 1700 m; waste places, April 1974, S.K.K. 13009.

Bombax ceiba L.

Kangra, Palampur and Dharamshala; on road sides, April 1974, S.K.K. 12950.

Hibiscus syriacus L.

Palampur, up to 1600 m; cultivated tract, June 1974, S.K.K. 13121.

Kydia calycina Roxb.

Kangra and Palampur; tropical regions, Sept. 1974, S.K.K. 12269.

Malva rotundifolia L.

Kangra and Palampur, up to 2200 m; common in fields and road sides, April 1974, S.K.K. 13059.

Malvastrum tricuspidatum A. Gray

Kangra and Palampur, up to 1600 m; common in cultivated and waste ground, April 1974, S.K.K. 13080.

Sida rhombifolia L.

Kangra and Palampur, up to 1700 m; cultivated tract, April 1974, S.K.K. 12974.

S. veronicaefolia Lamk.

Bajjnath and Palampur, up to 1750 m; cultivated tract, June 1974, S.K.K. 13138.

Urena lobata L.

Dharamshala, up to 1900 m; coniferous forest, Oct. 1972, Y.K.S. 10981.

STERCULIACEAE

Sterculia urens Roxb.

Palampur and Dharamshala; occasional, Oak-Coniferous forest, April 1974, S.K.K. 12978.

TILIACEAE

Grewia oppositifolia Buch.-Ham. ex Roxb.

Kangra, Palampur and Dharamshala, ascending to 2000 m; semi-deciduous forest, June 1966, Y.K.S. 11223.

Triumfetta pilosa Roth

Dharamshala and Palampur, up to 1700 m; forest margins, Oct. 1974, S.K.K. 13673.

GERANIACEAE

Geranium nepalense Sweet

Dharamshala and Palampur, 1600-2500 m; in shady, damp ravines, April 1974, S.K.K. 12945.

G. ocellatum Camb.

Palampur and Bajjnath, up to 1900 m; forest margins, Oct. 1974, S.K.K. 13672.

Impatiens amphorata Edgw.

Dharamshala, Palampur and Bajjnath, up to 2500 m; on waste ground, June 1974, S.K.K. 13102.

I. roylei Walp.

Bajjnath, Palampur and Kangra, up to 2500 m; forest margins, June 1974, S.K.K. 13141.

Oxalis corniculata L.

Dharamshala and Palampur, up to 2500 m; fairly common in cool shady, damp ravines, Sept. 1974, S.K.K. 13318.

O. martiana Zucc.

Bajjnath, Paprola and Palampur, up to 2300 m; shady, damp ravines, April 1974, S.K.K. 13037.

RUTACEAE

Aegle marmelos (L.) Corr.

Kangra and Bajjnath, up to 1300 m; semi-deciduous forest, April 1974, S.K.K. 13076.

Boenninghausenia albiflora Reichb.

Palampur and Dharamshala, 1300-2500 m; Oak-Coniferous forest, Oct. 1974, S.K.K. 13665.

Murraya koenigii (L.) Spreng.

Kangra, Paprola and Bajjnath, up to 1600 m; deciduous scrub, April 1974, S.K.K. 13031.

Toddalia asiatica (L.) Lamk.

Palampur, 1200-1600 m; semi-deciduous forest, May 1968, Y.K.S. 8347.

Zanthoxylum alatum Roxb.

Palampur and Dharamshala, up to

1600 m; secondary temperate scrub, April 1974, S.K.K. 12979.

BURSERACEAE

Garuga pinnata Roxb.

Kangra, up to 1500 m; on road sides and forest margins, Sept. 1968, Y.K.S. 1779.

MELIACEAE

Azadirachta indica Juss.

Yol Cantt. and Dharamshala, up to 1600 m; in cultivated and on waste ground, Sept. 1974, S.K.K. 13099.

Melia azedarach L.

Yol Cantt. and Dharamshala, up to 1600 m; in cultivated and on waste ground, Sept. 1974, S.K.K. 13097.

Toona ciliata M. Roem.

Kangra and Palampur, up to 2200 m; cultivated tract, June 1974, S.K.K. 13156.

RHAMNACEAE

Rhamnus virgatus Roxb.

Dharamshala and Palampur, up to 2500 m; Oak-Coniferous forest, June 1963, Y.K.S. 12970.

Sageretia oppositifolia Brongn.

Dharamshala and Palampur, up to 1900 m; semi-deciduous forest, June 1974, S.K.K. 13092.

Ziziphus nummularia W. & A.

Dharamshala and Palampur, up to 1700 m; on waste ground, June 1974, S.K.K. 13092.

AMPELIDACEAE

Vitis capriolata D. Don

Mcleod ganj, up to 2500 m; semi-deciduous forest, Sept. 1974, S.K.K. 13400.

V. parvifolia Roxb.

Mcleod ganj, up to 1900 m; semi-deciduous forest, Sept. 1974, S.K.K. 13091.

SAPINDACEAE

Dodonaea viscosa (L.) Jacq.

Kangra, up to 1500 m; deciduous scrub, Sept. 1974, S.K.K. 13088.

Sapindus emarginata Vahl

Palampur and Dharamshala; cultivated, up to 1600 m; Sept. 1974, S.K.K. 13090.

S. mukorossi Gaertn.

Palampur and Dharamshala; cultivated, up to 1600 m; Sept. 1974, S.K.K. 13310.

ANACARDIACEAE

Lannea coromandelica (Houtt.) Merr.

Kangra, Palampur and Dharamshala, up to 1500 m; semi-deciduous forest, June 1974, S.K.K. 13006.

Pistacia integerrima Stewart ex Brand.

Dharamshala, up to 1800 m; usually on slopes, June 1974, S.K.K. 13013.

Rhus cotinus L.

Dharamshala, 1000-1500 m; deciduous scrub forest, Sept. 1974, S.K.K. 13014.

R. wallichii Hook. f.

Palampur, up to 2200 m; forest margins, Sept. 1974, S.K.K. 13016.

Semecarpus anacardium L. f.

Kangra and Palampur, up to 1600 m; forest margins, Sept. 1974, S.K.K. 13020.

CORIARIACEAE

Coriaria nepalensis Wall.

Mcleod ganj, up to 2300 m; exposed rocks, Oct. 1974, S.K.K. 13035.

MORINGACEAE

Moringa oleifera Lamk.

Dharamshala and Palampur, up to 1700 m; semi-deciduous forest, April 1974, S.K.K. 13041.

FABACEAE (LEGUMINOSAE)

(a) PAPILIONOIDEAE

Abrus precatorius L.

Palampur and Kangra, up to 1700 m; deciduous scrub forest, June 1974, S.K.K. 13055.

Butea monosperma (Lamk.) Taub.

Kangra, up to 1200 m; semi-deciduous forest, April 1974, S.K.K. 13058.

Crotalaria albida Heyne ex Roth

Yol Cantt., up to 2250 m; in cultivated and on waste ground, Sept. 1974, S.K.K. 13067.

C. prostrata Rottl.

Yol Cantt., up to 1600 m; in cultivated and on waste ground, Sept. 1974, S.K.K. 13610.

Crotalaria tetragona Roxb.

Yol Cantt., up to 1600 m; deciduous scrub forest, Sept. 1974, S.K.K. 13088.

Dalbergia emarginata Roxb.

Kangra and Palampur, up to 1800 m; riverine forest and Cultivated tract, April 1974, S.K.K. 13072.

Desmodium gangeticum (L.) DC.

Palampur, up to 1600 m; semi-deciduous forest, Oct. 1974, S.K.K. 13666.

D. motorium (Hott.) Merr.

Palampur, up to 1600 m; cultivated tract, Sept. 1974, S.K.K. 13370.

D. parvifolium DC.

Palampur, up to 1900 m; semi-deciduous forest, Oct. 1974, S.K.K. 13728.

D. polycarpum DC.

Palampur, up to 1700 m; forest margins, Oct. 1974, S.K.K. 13669.

D. triflorum (L.) DC.

Dharamshala and Palampur, up to 1600 m; on rocks, Sept. 1974, S.K.K. 13324.

Erythrina variegata L.

Bajinath, up to 1400 m; on waste land, April 1974, Y.K.S. 13094.

Flemingia congesta Roxb.

Dharamshala, Palampur and Bajinath, up to 1900 m; semi-deciduous forest, April 1974, Y.K.S. 13083.

Indigofera gerardiana Wall.

Bajinath and Palampur, 1300-1700 m; in coniferous forest, Oct. 1974, Y.K.S. 13083.

Lathyrus aphaca Tourn. ex L.

Palampur and Dharamshala, up to 2300 m; common in fields, April 1974, S.K.K. 12951.

L. sativus L.

Palampur and Dharamshala, up to 2100 m; common in fields, April 1974, S.K.K. 12969.

Lotus corniculatus L.

Palampur and Dharamshala, up to 2500 m; cultivated tract, April 1974, S.K.K. 12949.

Medicago denticulata Willd.

Palampur, Dharamshala and Kangra; cultivated tract, April 1974, S.K.K. 12977.

Melilotus indica L.

Palampur, up to 1700 m; cultivated tract, April 1974, S.K.K. 12991.

Ougeinia ougeinensis (Roxb.) Hochreut

Kangra, below 1000 m; scrub forest, April 1974, S.K.K. 13702.

Pueraria tuberosa DC.

Kangra, up to 1000 m; scrub forest, April 1974, S.K.K. 13703.

Trifolium pratense L.

Dharamshala and Palampur, up to 2500 m; scrub forest, June 1974, S.K.K. 13705.

T. repens L.

Dharamshala, up to 2500 m; common in fields, April 1974, S.K.K. 12952.

Trigonella emodi Benth.

Palampur, up to 2300 m; scrub forest, June 1974, S.K.K. 13708.

Vicia hirsuta S.F. Gray

Palampur and Dharamshala, up to 1900 m; common in cultivated fields, April 1974, S.K.K. 12926.

V. sativa L.

Palampur, up to 1900 m; cultivated tract, April 1974, S.K.K. 13001.

Zornia diphylla Pers.

Kangra and Palampur, up to 1600 m; scrub forest, Oct. 1974, S.K.K. 13690.

(b) CAESALPINIOIDEAE

Bauhinia variegata L.

Kangra and Palampur, 1000-1500 m; hill slopes in Chir pine zone, April 1974, S.K.K. 13709.

Caesalpinia bonduc (L.) Roxb.

Kangra, up to 1000 m; forest margins, April 1974, S.K.K. 13710.

Cassia fistula L.

Kangra and Bajinath, up to 1600 m; mixed deciduous forest, June 1974, S.K.K. 13157.

C. mimosoides L.

Dharamshala, up to 1600 m; cultivated tract, June 1974, S.K.K. 13193.

C. occidentalis L.

Palampur, up to 1600 m; in cultivated

and on waste ground, Oct. 1974, S.K.K. 13713.

(c) MIMOSOIDEAE

Acacia nilotica (L.) Del.

Palampur, Kangra and Baijnath, up to 1500 m; cultivated tract, April 1974, S.K.K. 13715.

A. catechu Willd.

Palampur, Kangra and Baijnath, up to 1600 m; riverine forest, June 1974, S.K.K. 13799.

Albizia chinensis (Osbeck) Merr.

Kangra, Palampur and Baijnath, up to 1600 m; semi-deciduous forest, April 1974, S.K.K. 12983.

A. odoratissima Benth.

Knagra, Palampur and Baijnath, up to 1600 m; semi-deciduous forest, June 1974, S.K.K. 13718.

Mimosa rubicaulis Lamk.

Palampur and Kangra, up to 1500 m; scrub forest, April 1974, S.K.K. 13720.

ROSACEAE

Fragaria indica Andr.

Dharamshala, up to 2500 m; Oak forest, April 1974, S.K.K. 12906.

F. vesca L.

Treund hills, up to 2500 m; forest margins and on rocks, April 1974, S.K.K. 13751.

Geum urbanum L.

Treund hills, up to 2500 m; on rocks, Oct. 1974, S.K.K. 13625.

Potentilla argyrophylla Wall.

Treund hills, 1800-2500 m; on rocks, Sept. 1974, S.K.K. 13798.

P. fulgens Wall.

Treund hills, 2500 m; on rocks, Sept. 1974, S.K.K. 13759.

Prinsepia utilis Royle

Palampur and Mcleod ganj, up to 2500 m; in shady, damp ravines, Oct. 1974, S.K.K. 13712.

Pyrus pashia Buch.-Ham. ex D. Don

Palampur and Dharamshala, up to 2200 m; marshy land, April 1974, S.K.K. 13019.

Rosa moschata Mill.

Palampur and Kangra, 1000-1500 m; Oak-Coniferous forest, June 1974, S.K.K. 13668.

Rubus ellipticus Sm.

Palampur, up to 2200 m; scrub forest, April 1974, S.K.K. 12921.

R. lasiocarpus Sm.

Palampur and Dharamshala, up to 2000 m; scrub forest, April 1974, S.K.K. 13101.

SAXIFRAGACEAE

Deutzia corymbosa R. Br.

Dharamshala and Palampur, up to 2500 m; forest margins, Sept. 1974, S.K.K. 13760.

Parnassia nubicola Wall.

Titarcha hills, 2500 m; in shady, damp ravines, Oct. 1974, S.K.K. 13626.

Saxifraga brunoniana Wall.

Titarcha hills, 220-2500 m; in shady, damp ravines, Oct. 1974, S.K.K. 13723.

CRASSULACEAE

Bryophyllum pinnatum (Lamk.) Oken.

Kangra, up to 1300 m; cultivated tract, April 1974, S.K.K. 13107.

Sedum linearifolium Royle

Treund hills, 1200-2500 m; forest margins, Sept. 1974, S.K.K. 13391.

S. trifidum Wall.

Treund hills, 2500 m; forest margins, Sept. 1974, S.K.K. 13332.

COMBRETACEAE

Anogeissus latifolia Wall.

Palampur and Kangra, ascending to 1100 m; semi-deciduous forest, April, 1974, S.K.K. 13111.

Terminalia arjuna Bedd.

Yol. Cantt. and Dharamshala, up to 1800 m; semi-deciduous forest, Sept. 1974, S.K.K. 13606.

T. belerica Roxb.

Kangra, Yol Cantt. and Dharamshala, up to 1800 m; semi-deciduous forest, Sept. 1974, S.K.K. 13342.

Terminalia chebula Retz.

Kangra, Yol Cantt. and Baijnath; up to 1750 m; semi-deciduous forest, Sept. 1974, S.K.K. 13311.

MYRTACEAE

Syzygium cumini (L.) Skeels

Palampur, up to 1600 m; semi-deciduous forest, Sept. 1974, S.K.K. 13315.

MELASTOMACEAE

Osbeckia stellata Wall.

Titarcha hills, 2000 m; forest margins, Oct. 1974, S.K.K. 13726.

LYTHRACEAE

Ammannia baccifera L.

Palampur, up to 2000 m; marshy places, Sept. 1974, S.K.K. 13761.

Punica granatum L.

Kangra and Palampur, up to 1900 m; scrub forest, April 1974, S.K.K. 12965.

Rotala rotundifolia (D. Don) Koehne

Palampur and Dharamshala, up to 2000 m; marshy places, April 1974, S.K.K. 12965.

Woodfordia fruticosa (L.) Kurz

Kangra, Palampur and Baijnath, up to 1600 m; scrub forest, April 1974, S.K.K. 13077.

ONAGRACEAE

Epilobium roseum Schreb.

Treund hills, up to 2500 m; forest margins, Oct. 1974, S.K.K. 13641.

Hartmannia rosea G. Don

Dharamshala and Palampur, up to 2500 m; forest margins, April 1974, S.K.K. 12968.

SAMYDACEAE

Casearia graveolens Dalz.

Palampur and Kangra, up to 1400 m; semi-deciduous forest, Sept. 1974, S.K.K. 13763.

PASSIFLORACEAE

Passiflora edulis Sims.

Palampur and Dharamshala; introduced, April 1974, S.K.K. 13024.

CACTACEAE

Opuntia dillenii Haw.

Holta camp, up to 2000 m; on road sides, April 1974, S.K.K. 13012.

APIACEAE (UMBELLIFERAE)

Bupleurum tenue Buch.-Ham. ex D. Don

Palampur, up to 2500 m; riverine forest, July 1968, Y.K.S. 9662.

ARALIACEAE

Hedera helix L.

Dharamshala and Palampur, up to 2500 m; Oak-Coniferous forest, April 1974, S.K.K. 12943.

CAPRIFOLIACEAE

Lonicera quinquelocularis Hardw.

Dharamshala and Palampur, 1500-2500 m; Oak-Coniferous forest, April 1974, S.K.K. 13026.

Viburnum cotinifolium D. Don

Dharamshala and Palampur, 1500-2500 m; Oak-Coniferous forest, July 1970, Y.K.S. 12896.

RUBIACEAE

Galium aparine L.

Dharamshala and Palampur, up to 2500 m; scrub forest, Sept. 1974, S.K.K. 13364.

Hamiltonia suaveolens Roxb.

Dharamshala, 2000 m; forest margins, Sept. 1974, S.K.K. 13346.

Leptodermis lanceolata Wall.

Palampur, 1200-2500 m; on rocks, Oct. 1974, S.K.K. 13656.

Oldenlandia coccinea Royle

Dharamshala and Palampur, 1200-2500 m; on rocks, Sept. 1974, S.K.K. 13349.

Randia dumetorum Lamk.

Dharamshala and Palampur, up to 1900 m; on rocks, Sept. 1974, S.K.K. 13343.

R. tetrasperma Roxb.

Dharamshala, up to 1900 m; on rocks, Sept. 1974, S.K.K. 13314.

Rubia cordifolia L.

Dharamshala and Palampur, up to 2500 m; forest margins, April 1974, S.K.K. 12998.

Wendlandia exserta DC.

Dharamshala, ascending to 1300 m; forest margins, April 1974, S.K.K. 12914.

VALERIANACEAE

Valeriana wallichii DC.

Dharamshala, up to 2500 m; forest margins, April 1974, S.K.K. 13132.

ASTERACEAE (COMPOSITAE)

Achillea millefolium L.

Titarcha hills, up to 2500 m; on moist rocks, Oct. 1974, S.K.K. 13704.

Adenostemma lavenia (L.) O. Ktze.

Palampur, up to 1600 m; on moist rocks, Oct. 1974, S.K.K. 13663.

Ageratum conyzoides L.

Palampur and Kangra, up to 1600 m; forest margins, April 1974, S.K.K. 13030.

Anaphalis triplinervis Clarke

Titarcha and Treund hills up to 2500 m; on rocks, Oct. 1974, S.K.K. 13633.

Artemisia parviflora Roxb.

Dharamshala and Palampur, 1200-2000 m; deciduous forest and open scrub, Oct. 1974, S.K.K. 13601.

A. roxburghiana Besser

Dharamshala, up to 2000 m; semi-deciduous forest, Sept. 1974, S.K.K. 13200.

Aster thomsoni Clarke

Treund, 2500 m; on dry rocks, Sept. 1974, S.K.K. 13356.

Bidens biternata (Lour.) Merr. & Sherff

Dharamshala and Palampur, up to 2100 m; cultivated tract, Sept. 1974, S.K.K. 13323.

B. tripartita L.

Dharamshala and Palampur, up to 1600 m; on moist rocks, Sept. 1974, S.K.K. 13360.

B. wallichii DC.

Dharamshala and Palampur, up to 2500 m; on moist rocks, Sept. 1974, S.K.K. 13355.

Blumea wightiana DC.

Dharamshala and Baijnath, up to 1600 m; on moist rocks, June 1974, S.K.K. 13146.

Carthamus oxyacantha Bieb.

Palampur, up to 1900 m; cultivated fallow land, Sept. 1976, S.K.K. 13379.

Centipeda minima (L.) A. Br. ex Aschers.

Palampur and Dharamshala, up to 1900 m; marshy places, June 1974, S.K.K. 13095.

Cirsium arvense (L.) Scop.

Kangra, up to 1600 m; on rocks, April 1974, S.K.K. 13052.

C. argyranthum (DC.) Handet-Mazzetti

Dharamshala, 1600-2500 m; forest margins, April 1974, S.K.K. 12982.

Cnicus wallichii DC.

Dharamshala, 1600-2500 m; forest margins, April 1974, S.K.K. 12981.

Crepis japonica Benth.

Dharamshala, up to 2500 m; forest margins, April 1974, S.K.K. 12938.

Dichrocephala latifolia DC.

Palampur, 1200 m; semi-deciduous forest, June 1974, S.K.K. 13108.

Echinops cornigerus DC.

Kangra, 700 m; on waste ground, June 1974, S.K.K. 13053.

Eclipta prostrata L.

Dharamshala, 1500-2000 m; marshy places, Sept. 1974, S.K.K. 13312.

Erigeron canadensis L.

Baijnath and Paprola; cultivated tract and forest margins, April 1974, S.K.K. 13033.

E. multiradiatus Benth.

Treund, 2500 m; on rocks, April 1974, S.K.K. 13022.

Gnaphalium indicum L.

Dharamshala and Titarcha, 2000-2500 m; exposed slopes, April 1974, S.K.K. 12933.

G. luteo-album L.

Titarcha hills, 2400 m; dry rocks, April 1974, S.K.K. 12901.

Inula cappa DC.

Palampur and Dharamshala, up to 1900 m; Oak forest, Oct. 1974, S.K.K. 13662.

Lactuca dissecta D. Don

Palampur and Baijnath, up to 1900 m; forest margins, April 1974, S.K.K. 12939.

L. hastata DC.

Palampur and Kangra, up to 1900 m; Oak forest, April 1974, S.K.K. 13036.

Launaea nudicaulis (L.) Hook. f.

McLeod ganj and Kangra; cultivated tract, April 1974, S.K.K. 12967.

Myriactis nepalensis Less.

McLeod ganj and Baijnath, 1500-2500 m; forest margins, April 1974, S.K.K. 13034.

Prenanthes brumoniana Wall.

Treund hills, 1600-2500 m; marshy ground, Oct. 1974, S.K.K. 13620.

Saussurea candicans Clarke

Holta Camp, up to 2220 m; cultivated tract, April 1974, S.K.K. 13005.

Senecio chrysanthemoides DC.

Titarcha hills, 1600-2500 m; forest margins, Oct. 1974, S.K.K. 13698.

S. nudicaulis Buch.-Ham. ex D. Don

McLeod ganj, up to 2500 m; dry slopes, Oct. 1974, S.K.K. 13653.

Siegesbeckia orientalis L.

Dharamshala, up to 1800 m; forest margins, Sept. 1974, S.K.K. 13180.

Silybum marianum Gaertn.

Palampur and Kangra, up to 1500 m; cultivated tract, April 1974, S.K.K. 13084.

Solidago virga-aurea L.

Holta Camp, 1500-2500 m; riverine forest, Oct. 1974, S.K.K. 13693.

Sonchus asper Vill.

Palampur and Dharamshala, up to 2500 m; cultivated tract, April 1974, S.K.K. 13007.

S. oleraceus L.

Palampur, up to 2500 m; on waste ground, April 1974, S.K.K. 13004.

Tagetes minuta L.

Dharamshala, 1500-1800 m; cultivated tract, Oct. 1974, S.K.K. 13621.

Tricholepis elongata DC.

Treund hills, up to 2500 m; semi-deciduous forest, Oct. 1974, S.K.K. 13631.

Vernonia cinerea Less.

Palampur, up to 2200 m; on waste ground, June 1974, S.K.K. 13130.

Vicoa auriculata Cass.

Dharamshala, 1500-1900 m; Oak-Coniferous forest, April 1974, S.K.K. 13071.

Xanthium strumarium L.

Kangra, Dharamshala and Palampur, up to 1600 m; cultivated tract, Sept. 1974, S.K.K. 13363.

ERICACEAE

Lyonia ovalifolia (Wall.) Drude

Palampur and Dharamshala, 1600-2500 m; Oak-Coniferous forest, Sept. 1974, S.K.K. 13366.

Rhododendron arboreum Sm.

McLeod ganj, 1500-2400 m; Oak Coniferous forest, Sept. 1974, S.K.K. 13384.

PLUMBAGINACEAE

Plumbago zeylanica L.

Kangra, up to 2000 m; cultivated tract, April 1974, S.K.K. 13062.

PRIMULACEAE

Anagallis arvensis L.

Palampur, up to 2200 m; cultivated tract, April 1974, S.K.K. 12908.

Androsace lanuginosa Wall.

Titarcha hills, 2400 m; on moist rocks, Oct. 1974, S.K.K. 13701.

A. rotundifolia Hardw.

Dharamshala and Palampur, 1600-2500 m; on moist rocks, Oct. 1974, S.K.K. 13771.

Primula sibirica Jacq.

Dharamshala, 2000 m; on moist rocks, June 1974, S.K.K. 13369.

MYRSINACEAE

Maesa indica Wall.

Kangra, 600-1000 m; semi-deciduous forest, April 1974, S.K.K. 13044.

OLEACEAE

Jasminum grandiflorum L.

Dharamshala, up to 2500 m; cultivated tract and forest margins, June 1974, S.K.K. 13127.

J. officinale L.

Dharamshala, up to 2250 m; cultivated

tract and forest margins, April 1974, S.K.K. 13066.

APOCYNACEAE

Carissa opaca Stapf.

Kangra, Palampur and Baijnath, up to 1600 m; forest margins, April 1974, S.K.K. 13079.

Nerium indicum Mill.

Kangra, up to 1000 m; riverine forest, April 1974, S.K.K. 12960.

Trachelospermum fragrans Hook. f.

Palampur and Baijnath, up to 1600 m; on waste ground, Oct. 1974, S.K.K. 13716.

Vallaris solonacea (Roth) O. Ktze.

Dharamshala and Palampur, 900-1200 m; semi-deciduous forest, April 1974, S.K.K. 13075.

ASCLEPIADACEAE

Asclepias curassavica L.

Kangra, 700-900 m; along water courses and cultivated tract, June 1974, S.K.K. 13098.

Calotropis procera (Ait.) R. Br.

Kangra up to 1400 m; on waste ground, April 1974, S.K.K. 12931.

Cryptolepis buehneri Roem. & Schult.

Kangra and Baijnath, up to 1600 m; forest margins, Sept. 1974, S.K.K. 13144.

LOGANIACEAE

Buddleia asiatica Lour.

Dharamshala and Palampur, up to 1600 m; forest margins, April 1974, S.K.K. 12915.

GENTIANACEAE

Gentiana quadrifaria Blume

Treund and Titarcha hills, 2000-2500 m; marshy places, April 1974, S.K.K. 12941.

Swertia angustifolia Buch.-Ham. ex D Don

Treund, 2000-2300 m; on rocks, Sept. 1974, S.K.K. 13619.

S. paniculata Wall.

Palampur, 1200-1500 m; Oak-Coniferous forest, Oct. 1974, S.K.K. 13724.

S. tetragona Clarke

Treund, 1500-2300 m; Oak-Coniferous forest, Oct. 1974, S.K.K. 13772.

BORAGINACEAE

Cynoglossum denticulatum A. DC.

Dharamshala and throughout; cultivated tract and forest margins, April 1974, S.K.K. 12929.

C. micranthum Desf.

Palampur, up to 2500 m; cultivated tract, April 1974, S.K.K. 12957.

Ehretia acuminata R. Br.

Dharamshala, up to 1700 m; forest margins, June 1974, S.K.K. 13111.

Heliotropium strigosum Willd.

Dharamshala, up to 1600 m; common throughout, June 1974, S.K.K. 13174.

Trichodesma indicum R. Br.

Dharamshala, up to 1600 m; forest margins, Sept. 1974, S.K.K. 13358.

CONVOLVULACEAE

Convolvulus arvensis L.

Kangra, up to 2000 m; cultivated tract, April 1974, S.K.K. 13056.

Cuscuta reflexa Roxb.

Palampur, 1800 m; cultivated tract and forest margins, Sept. 1974, S.K.K. 13628.

Evolvulus alsinoides L.

Palampur, 1600 m; cultivated tract, June 1974, S.K.K. 13135.

E. nummularis L.

Palampur and Baijnath; cultivated tract, April 1974, S.K.K. 12993.

Ipomoea cairica (L.) Sweet

Palampur, up to 2100 m; semi-deciduous forest, April 1974, S.K.K. 13068.

I. carnea Jacq.

Kangra, up to 1000 m; cultivated tract, April 1974, S.K.K. 13060.

I. purpurea Lamk.

Palampur, up to 2000 m; forest margins, June 1974, S.K.K. 13160.

I. sinuata Ortega

Kangra, 800 m; semi-deciduous forest, June 1974, S.K.K. 13120.

SOLANACEAE

Datura stramonium L.

Dharamshala and Palampur, 1200-2000 m; on waste ground, April 1974, S.K.K. 13049.

Nicotiana rustica L.

Palampur, 1200 m; shady waste places, April 1974, S.K.K. 12984.

Physalis minima L.

Bajjnath, 1200 m; waste places, Oct. 1974, S.K.K. 13643.

P. peruviana L.

Bajjnath, 1000 m; forest margins, Oct. 1974, S.K.K. 13680.

Solanum incanum L.

Dharamshala, 1700 m; forest margins, April 1974, S.K.K. 12985.

S. indicum L.

Dharamshala, 1300 m; cultivated fallow land, April 1974, S.K.K. 12947.

S. khasianum Clarke

Bajjnath and Palampur, 1200-2000 m; in waste places, April 1974, S.K.K. 13018.

S. nigrum L.

Palampur, up to 1900 m; on waste ground, April 1974, S.K.K. 12911.

S. pseudo-capsicum L.

Palampur and Dharamshala, up to 2200 m; shady places, Sept. 1974, S.K.K. 13188.

S. torvum Sw.

Dharamshala, throughout up to 1800 m; semi-deciduous forest, April 1956, Y.K.S. 6998.

S. verbascifolium L.

Dharamshala, up to 1600 m; semi-deciduous forest, June 1966, Y.K.S. 12588.

S. xanthocarpum Schl. & Wendl.

Dharamshala, up to 2200 m; in waste places, June 1974, S.K.K. 13181.

SCROPHULARIACEAE

Bonnaya brachiata Link

Dharamshala, up to 1700 m; on moist rocks, Sept. 1974, S.K.K. 13325.

Lindenbergia indica (L.) O. Ktze.

Kangra and Dharamshala, 800-1500 m; on rocks, June 1974, S.K.K. 13100.

Mazus japonicus (Thunb.) O. Ktze.

Dharamshala, 800-1500 m; cultivated tract, April 1974, S.K.K. 12920.

Verbascum coromandelianum (Vahl) O. Ktze.

Palampur, up to 1500 m; cultivated tract, April 1974, S.K.K. 13087.

V. thapsus L.

Palampur, 1000 m; cultivated tract, April 1974, S.K.K. 13047.

Veronica agrestis L.

Palampur, 1200 m; forest margins, April 1974, S.K.K. 12930.

V. anagallis L.

Kangra and Palampur, up to 1200 m; marshy places, April 1974, S.K.K. 13334.

V. arvensis L.

Palampur, 1500-2000 m; forest margins, April 1974, S.K.K. 13336.

ACANTHACEAE

Adhatoda vasica (L.) Nees

Bajjnath, up to 1600 m; semi-deciduous forest and cultivated tract, April 1974, S.K.K. 13038.

Barleria cristata L.

Bajjnath, 1000 m; forest margins, June 1974, S.K.K. 13154.

B. dichotoma Roxb.

Dharamshala, 1500-2000 m; forest margins, Sept. 1974, S.K.K. 13189.

Dicliptera roxburghiana Nees

Palampur, up to 2200 m; exposed rocks, April 1974, S.K.K. 13039.

Eranthemum nervosum (Vahl) R. Br.

Kangra and Bajjnath, 1200-1700 m; semi-deciduous forest, April 1974, S.K.K. 13027.

Lepidagathis cuspidata Nees

Palampur, 1600 m; Pine forest, Oct. 1974, S.K.K. 13739.

Justicia procumbens L.

Dharamshala, up to 2200 m; forest margins, Sept. 1974, S.K.K. 13178.

Rungia pectinata (L.) Nees

Bajjnath, 1700 m; Pine forest, June 1974, S.K.K. 13149.

VERBENACEAE

Callicarpa macrophylla Vahl

Palampur, 1800 m; semi-deciduous forest, Sept. 1972, Y.K.S. 14227.

Lantana camara L.

Dharamshala and Palampur, up to 1700 m; common, April 1974, S.K.K. 12919.

Verbena bonariensis L.

Kangra and Baijnath, up to 2000 m; forest margins and cultivated tract, June 1974, S.K.K. 13148.

Vitex negundo L.

Dharamshala, up to 1700 m; cultivated tract, June 1974, S.K.K. 13105.

LAMIACEAE (LABIATAE)

Ajuga bracteosa Wall.

Treund, 2300 m; on rocks, April 1974, S.K.K. 12934.

Calamintha clinopodium Benth.

Palampur, up to 2500 m; forest margins, April 1974, S.K.K. 12924.

Colebrookia oppositifolia Sm.

Kangra, up to 1700 m; forest margins, April 1974, S.K.K. 13081.

Craniotome versicolor Reichb.

Palampur, 1500-2300 m; cultivated fallow land, Oct. 1974, S.K.K. 13661.

Elsholtzia polystachya Benth.

Titarcha, 1600-2500 m; forest margins, Oct. 1974, S.K.K. 13696.

Lamium album L.

Dharamshala, 1600-2300 m; marshy ground, Oct. 1974, S.K.K. 13741.

Leucas hyssopifolia Benth.

Palampur, up to 1600 m; cultivated tract, April 1974, S.K.K. 13017.

Mentha longifolia (L.) Huds.

Palampur, up to 2300 m; along water courses, June 1974, S.K.K. 13096.

Micromeria biflora Benth.

Palampur, 1000-2500 m; on rocks, April 1974, S.K.K. 12923.

Nepeta graciliflora Benth.

Kangra, 1000-2500 m; marshy places, April 1974, S.K.K. 12973.

N. hindostana (Roth.) Haines

Kangra, up to 1600 m; cultivated tract, April 1974, S.K.K. 13070.

N. linearis Royle ex Benth.

Kangra, 1000-2500 m; Oak-Coniferous tract, April 1974, S.K.K. 12990.

N. mollis Benth.

Kangra, up to 1500 m; on waste ground and Oak-Coniferous forest, June 1974, S.K.K. 13046.

Ocimum americanum L.

Kangra, up to 1700 m; in waste places, April 1974, S.K.K. 13075.

Origanum vulgare L.

Kangra and Dharamshala, up to 1800 m; forest margins, Sept. 1974, S.K.K. 13309.

Perilla ocimoides L.

Palampur, up to 1700 m; waste places, Sept. 1974, S.K.K. 13316.

Plectranthus coetsa Buch.-Ham. ex D. Don.

Palampur, up to 2500 m; forest margins, Sept. 1974, S.K.K. 13374.

Pogostemon plectranthoides Desf.

Baijnath, up to 1700 m; waste places, April 1974, S.K.K. 13043.

Roylea calycina (Roxb.) Briq.

Baijnath, up to 1700 m; on road sides, April 1974, S.K.K. 13040.

Salvia lanata Roxb.

Dharamshala, 1500-2300 m; forest margins, Oct. 1974, S.K.K. 13714.

PLANTAGINACEAE

Plantago lanceolata L.

Palampur, 1500-2200 m; cultivated tract, April 1974, S.K.K. 12986.

P. major L.

Palampur, up to 2500 m; forest margins, April 1974, S.K.K. 12976.

NYCTAGINACEAE

Boerhaavia diffusa L.

Palampur and Kangra, up to 1900 m; cultivated tract, April 1974, S.K.K. 13063.

AMARANTHACEAE

Achyranthes aspera L.

Dharamshala, up to 1400 m; on waste ground, June 1974, S.K.K. 13129.

Aerva sanguinolenta (L.) Blume

Palampur, up to 1900 m; cultivated tract and forest margins, Sept. 1974, S.K.K. 13330.

Alternanthera sessilis R.Br.

Kangra, 1350 m; on waste ground, April 1974, S.K.K. 13069.

Amaranthus caudatus L.

Palampur, 1600 m ; cultivated tract, April 1974, S.K.K. 12992.

A. spinosus L.

Palampur and Kangra, up to 1600 m ; cultivated tract, Oct. 1974, S.K.K. 13028.

A. viridis L.

Palampur and Kangra, up to 1600 m ; cultivated tract, April 1974, S.K.K. 12959.

Gomphrena decumbens Jacq.

Dharamshala, 1700 m ; sandy soil, June 1974, S.K.K. 13122.

Pupalia lappacea (L.) Juss.

Dharamshala, up to 1900 m ; forest margins, Sept. 1974, S.K.K. 13367.

CHENOPODIACEAE

Chenopodium album L.

Palampur, up to 2500 m ; cultivated tract, April 1974, S.K.K. 12942.

C. ambrosioides L.

Bajjnath, up to 1800 m ; cultivated tract, June 1974, S.K.K. 13153.

C. botrys L.

Bajjnath, up to 2500 m ; waste places, April 1974, S.K.K. 12980.

POLYGONACEAE

Polygonum barbatum L.

Palampur, up to 1700 m ; forest margins, April 1974, S.K.K. 13010.

P. caitatum Buch.-Ham. ex D. Don

McLeod ganj, up to 1900 m ; on rocky slopes, April 1974, S.K.K. 12940.

P. chinense L.

Palampur, up to 2500 m ; open grass fields, April 1974, S.K.K. 13021.

P. dumetorum L.

Palampur, up to 2000 m ; open fields, Oct. 1974, S.K.K. 13655.

P. hydropiper L.

Palampur and Kangra, 600-1200 m ; marshy places, June 1974, S.K.K. 13112.

P. nepalense Meissn.

Palampur, 1700 m ; on rocks and cultivated tract, June 1974, S.K.K. 13172.

P. orientale L.

Palampur, 1700 m ; on exposed rocks and cultivated tract, April 1974, S.K.K. 12997.

P. plebejum R. Br.

Palampur and Kangra, up to 1800 m ; marshy places, April 1974, S.K.K. 12917.

P. vacciniifolium Wall.

Palampur, 1200 m ; cultivated tract, April 1974, S.K.K. 13051.

Rumex dentatus L.

Palampur and Kangra, up to 1700 m ; forest margins, April 1974, S.K.K. 13054.

R. hastatus D. Don

Palampur, between 1000-2500 m ; exposed rocks, April 1974, S.K.K. 12927.

R. nepalensis Spreng.

Dharamshala and Palampur, 1500-2500 m ; exposed slopes, April 1974, S.K.K. 12902.

LAURACEAE

Cinnamomum camphora Nees & Eberm.

Palampur, 1200 m ; cultivated tract, April 1974, S.K.K. 12979.

THYMELEACEAE

Daphne cannabina Wall.

Dharamshala, 1500-1800 m ; forest margins, April 1974, S.K.K. 12962.

ELAEAGNACEAE

Elaeagnus umbellata Thunb.

Dharamshala and Palampur, 1200-2000 m ; Oak-Coniferous forest, April 1974, S.K.K. 12904.

EUPHORBIACEAE

Emblica officinalis Gaertn.

Yol Cantt., 600-1000 m ; semi-deciduous forest, Sept. 1974, S.K.K. 13618.

Euphorbia helioscopia L.

Palampur and Kangra, 600-1500 m ; Oak-Coniferous forest, April 1974, S.K.K. 12909.

E. hypericifolia L.

Palampur, 1000-2000 m ; cultivated tract, Sept. 1974, S.K.K. 13197.

E. pilosa L.

Bajjnath, 1500-2300 m ; forest margins, April 1974, S.K.K. 13050.

E. thymifolia Burm.

Bajjnath, up to 1700 m ; cultivated tract, June 1974, S.K.K. 13139.

Mallotus philippensis Muell.-Arg.

Kangra, Palampur and Bajjnath, up to

1000 m ; scrub forest and cultivated tract,
April 1974, S.K.K. 12966.

Richinus communis L.

Palampur, up to 1900 m ; on waste
ground, April 1974, S.K.K. 13029.

Sapium sebiferum Roxb.

Palampur, up to 1900 m ; on road sides,
June 1974, S.K.K. 13140.

Sarcococca pruniformis Lindl.

Treund hills, up to 2700 m ; on rocks,
Oct. 1974, S.K.K. 13396.

URTICACEAE

Boehmeria platyphylla D. Don

Baijnath, up to 1700 m ; April 1974,
S.K.K. 13042.

Cannabis indica Lamk.

Baijnath, up to 1700 m ; on waste ground,
June 1974, S.K.K. 13137.

Elatostema sessile Forst.

Baijnath, up to 2300 m ; cultivated tract,
Oct. 1974, S.K.K. 13700.

Ficus benghalensis L.

Kangra, up to 1500 m ; semi-deciduous
forest, April 1974, S.K.K. 13064.

F. foveolata Wall.

Titarcha hills, 2300 m ; semi-deciduous
forest, Oct. 1974, S.K.K. 13719.

F. palmata Forsk.

Dharamshala, up to 1700 m ; semi-decidu-
ous forest, June 1974, S.K.K. 13086.

F. racemosa Wall.

Dharamshala, up to 1700 m ; semi-decidu-
ous forest, June 1974, S.K.K. 13113.

Girardinia palmata Gaud.

Dharamshala and Palampur, up to
1900 m ; shady places, June 1974, S.K.K.
13171.

Pouzolzia indica Gaud.

Treund hills, up to 1900 m ; on rocks,
April 1974, S.K.K. 12925.

Urtica dioica L.

Dharamshala, 1600-2500 m ; common
throughout, Sept. 1974, S.K.K. 13305.

U. parviflora Roxb.

Dharamshala, 1500-2300 m ; common
throughout, Sept. 1974, S.K.K. 13136.

CUPULIFERAE

Quercus leucotrichophora A. Camus

Mcleod ganj, 1500-2300 m ; Oak-Conifer-
ous forest, Sept. 1974, S.K.K. 13380.

SALICACEAE

Salix tetrasperma Roxb.

Palampur, up to 1700 m ; on road sides,
April 1974, S.K.K. 13003.

S. wallichiana Anders.

Palampur, 1400-2500 m ; forest margins,
April 1974, S.K.K. 12999.

CERATOPHYLLACEAE

Ceratophyllum demersum L.

Palampur, up to 1800 m ; in tanks and
still waters, June 1960, Y.K.S. 8555.

ORCHIDACEAE

Aerides multiflorum Roxb.

Palampur, up to 1800 m ; epiphyte, Sept.
1974, S.K.K. 13398.

Epipactis consimilis Wall.

Dharamshala, up to 1800 m ; semi-decidu-
ous forest, June 1962, Y.K.S. 10941.

Habenaria ensifolia Lindl.

Palampur, 1600-2300 m ; semi-deciduous
forest, April 1974, S.K.K. 13011.

H. pectinata D. Don

Palampur, 1600-2300 m ; semi-deciduous
forest, June 1974, S.K.K. 13208.

Rhynchostylis retusa Blume

Palampur and Kangra, up to 1800 m ;
epiphyte, April 1974, S.K.K. 12987.

Satyrium nepalense D. Don

Palampur, 1200-1800 m ; common through-
out, Sept. 1974, S.K.K. 13371.

Zeuxine strateumatica (L.) Schl.

Palampur, up to 2000 m ; on rocks, Sept.
1974, S.K.K. 13268.

ZINGIBERACEAE

Cautleya lutea Royle

Dharamshala, up to 2300 m ; forest mar-
gins, Sept. 1974, S.K.K. 13290.

Costus speciosus Sm.

Kangra, ascending to 1400 m ; cultivated
tract, Oct. 1974, S.K.K. 13399.

Hedychium spicatum Hamilt. ex Sm.

Dharamshala, up to 2200 m; Oak-Coniferous forest, Oct. 1974, S.K.K. 13340.

Roscoea procera Wall.

Titarcha hills, up to 2500 m; forest margins, June 1974, S.K.K. 13142.

Zingiber capitatum Roxb.

McLeod ganj, up to 2200 m; shady ground, Oct. 1974, S.K.K. 13335.

Z. roseum Rosc.

Kangra, up to 1000 m; semi-deciduous forest, Oct. 1974, S.K.K. 13397.

IRIDACEAE

Iris kumaonensis Wall.

McLeod ganj, 1800-2200 m; on exposed slopes, June 1974, S.K.K. 13074.

AMARYLLIDACEAE

Agave americana L.

Kangra, Palampur, up to 1350 m; cultivated tract, Oct. 1974, S.K.K. 13390.

A. vera-curz Mill.

Palampur; on boundaries of cultivated fields, Oct. 1974, S.K.K. 13382.

DIOSCOREACEAE

Dioscorea belophylla Voigt

Palampur and Kangra, up to 1500 m; cultivated tract, forest margins, Sept. 1974, S.K.K. 13308.

D. bulbifera L.

Palampur and Kangra, up to 1500 m; cultivated tract and forest margins, Sept. 1974, S.K.K. 13368.

D. pentaphylla L.

Palampur, 1200 m; semi-deciduous forest, Oct. 1974, S.K.K. 13394.

LILIACEAE

Aloe barbadensis Mill.

Baijnath, up to 1100 m; cultivated tract, April 1974, S.K.K. 13697.

Asparagus adscendens Roxb.

Palampur, Baijnath and Paprola, up to 1000 m; semi-deciduous forest, Oct. 1974, S.K.K. 13664.

A. racemosus Willd.

Palampur, Baijnath and Paprola, up to 1000 m; semi-deciduous forest, Oct. 1974, S.K.K. 13375.

Gagea lutea Schultz f.

Dharamshala, 1900-2500 m; moist grass slopes, April 1974, S.K.K. 13119.

Gloriosa superba L.

Kangra and Baijnath, 600-1200 m; forest scrub, July 1974, S.K.K. 13229.

Lilium thomsonianum Royle

Dharamshala, 1500-2500 m; forest margins, Oak forests, June 1974, S.K.K. 13287.

Polygonatum verticillatum Allioni

Titarcha hills, 2200-2500 m; forest margins, Oak-Coniferous forest, June 1974, S.K.K. 13234.

Smilax parvifolia Wall.

Titarcha hills, Palampur and Kangra, between 1000-2300 m; forest margins, Oct. 1974, S.K.K. 13707.

Tulipa stellata Hook.

Dharamshala, 1900 m; exposed grass slopes, April 1974, S.K.K. 12964.

COMMELINACEAE

Ancilema nudiflorum R. Br.

Dharamshala, 1000-1500 m; marshy places, April 1974, S.K.K. 12995.

Commelina benghalensis L.

Kangra and Palampur, 600-1200 m; cultivated land, Sept. 1974, S.K.K. 13260.

C. obliqua Buch.-Ham. ex D. Don

Palampur, 900-2000 m; cultivated and fallow land, Sept. 1974, S.K.K. 13300.

Cyanotis barbata D. Don

Palampur, 1200-1500 m; moist shade, semi-deciduous forest, Sept. 1974, S.K.K. 13264.

JUNCACEAE

Juncus bufonius L.

Kangra and Baijnath; cultivated and fallow land, June 1974, S.K.K. 13173.

TYPHACEAE

Typha angustata Bory & Chauh.

Kangra; marshy and watery localities, June 1974, S.K.K. 13082.

ARACEAE

Acorus calamus L.

Kangra, 800 m; in marshy and watery localities, April 1974, S.K.K. 12994.

Arisaema jacquemontii Blume

Dharamshala, 2000-2500 m ; forest margins, Oak-Coniferous forest, June 1974, S.K.K. 12989.

A. tortuosum Schott

Dharamshala, 2000-2500 m ; Oak-Coniferous forest, June 1974, S.K.K. 12958.

Sauromatum guttatum Schott

Palampur and Dharamshala, 1000-1600 m ; Oak-Coniferous forest, Sept. 1974, S.K.K. 13386.

Remusatia hookeriana Schott

Dharamshala, 1600-2300 m ; moist rocks, Sept. 1974, S.K.K. 13393.

ALISMACEAE

Alisma plantago L.

Palampur, 1200 m ; marshy and watery localities, Sept. 1974, S.K.K. 13301.

ERIOCAULACEAE

Eriocaulon nepalense Prescott ex Bong.

Palampur, up to 1700 m ; marshy localities, June 1974, S.K.K. 13073.

E. oryzetorum Mart.

Palampur, up to 1700 m ; near running water, June 1974, S.K.K. 13061.

E. sieboldianum Sieb. & Zucc. ex Steud.

Palampur, 1200-1500 m ; cultivated fallow land, June 1974, S.K.K. 13109.

CYPERACEAE

Carex muricata L.

Palampur, up to 1700 m ; cultivated tract, June 1974, S.K.K. 13169.

C. nubigena D. Don

Palampur, up to 1700 m ; cultivated tract, June 1974, S.K.K. 13217.

Cyperus niveus Retz.

Palampur, up to 2000 m ; cultivated tract, June 1974, S.K.K. 13133.

Eriophorum comosum Wall.

Palampur, up to 1800 m ; cultivated tract, April 1974, S.K.K. 13110.

Fimbristylis dichotoma Vahl

Palampur, up to 1300 m ; dry pastures, June 1974, S.K.K. 13177.

Kobresia laxa Boeck.

Palampur, 2300 m ; forest margins, June 1974, S.K.K. 13124.

Kyllinga brevifolia Rottb.

Palampur, up to 1700 m ; cultivated tract, Sept. 1974, S.K.K. 13350.

K. squamulata Vahl

Dharamshala, up to 1700 m ; cultivated tract, Sept. 1974, S.K.K. 13328.

Mariscus squarrosus Clarke

Palampur, ascending to 1900 m ; common throughout, June 1974, S.K.K. 13179.

Scirpus squarrosus L.

Palampur, ascending to 1800 m ; cultivated tract, Oct. 1974, S.K.K. 13729.

GYMNOSPERMS

PINACEAE

Cedrus deodara Laud.

McLeod ganj and Palampur, 1200 & 2000-2500 m ; Oak-Coniferous forest, April 1974, S.K.K. 12988.

Pinus roxburghii Sargent

Dharamshala, Palampur and Kangra, 1000-2100 m ; Coniferous forest, April 1974, S.K.K. 12916.

PTERIDOPHYTES

PTERIDACEAE

Adiantum capillus-veneris L.

Dharamshala and Palampur, 1000-2500 m ; common along water courses, April 1974, S.K.K. 12961.

A. caudatum L.**A. incisum** Forsk.

Dharamshala, Palampur and Kangra, up to 2000 m ; moist, shady ground and forest margins, Oct. 1974, S.K.K. 13736.

A. lunulatum Burm. f.**A. philippense** L.

Dharamshala and Palampur, 1200-1800 m ; forest margins, Sept. 1974, S.K.K. 13345.

Cheilanthes farinosa (Forsk.) Kaulf.**Aleuritopteris farinosa** (Forsk.) Fee

Palampur, Dharamshala and Kangra, 1000-2100 m ; common in open places, hill sides, June 1974, S.K.K. 13162.

Onychium contiguum Hope

Titarcha and Dharamshala, 1800-2200 m ;

moist and shady ground, Sept. 1974, S.K.K. 13395.

Pteris vittata L.

Dharamshala, Palampur and Baijnath, 1000-2000 m; shady places, Oct. 1974, S.K.K. 13683.

ASPIDIACEAE

Diplazium polypodioides Mett.

Dharamshala and Palampur, 1200-2000 m; along streams and river banks, June 1974, S.K.K. 13015.

EQUISETACEAE

Equisetum debile Roxb.

Palampur, 1200 m; along stream and river banks in shady places, June 1974, S.K.K. 13226.

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