

Taxonomic Characterisation of Flowering Plant Species

Vir Jee

Taxonomy is defined as that branch of science which deals with the identification, nomenclature and classification of biological (living) organisms on the basis of their similarities and differences. Etymologically, Taxonomy owes its origin to two Greek words – “*Taxis*” = arrangement and “*nomos*” = rules or laws i.e. arrangement as per rules or laws. It serves as the pedestal for entire biology and hence can be considered as the mother of all biological sciences. Even in our daily life, a man behaves as a taxonomist while identifying and naming a particular food to eat; a beverage to drink or clothes to wear, etc. Identification of a particular biological entity is, therefore, a fundamental pre-requisite for carrying out any further study or research in it. However, identification is inconceivable without a proper system of nomenclature.

Any object known to human intelligence must possess a name for describing and communicating ideas about it in order to ascertain its relationships. There are two types of names which have been assigned to biological objects since ancient times – the common or vernacular (local) names and the scientific name. The former have been handed down from generation to generation and are derived from regional or native languages of a particular country. For example ‘*seib*’ and ‘*kutta*’ (vernacular Hindi names) of India are known as ‘apple’ and ‘dog’ in USA, respectively. Moreover, widely distributed

organisms bear a large number of common names. In India alone, a large number of local names exist due to the multi - linguistic nature of its people. Thus vernacular names are neither methodical nor universal and could prove quite misleading in their application. To overcome such limitations, every known biological species is given a legitimate scientific name based on universally accepted International code of binomial system formalized first in mid- 18th century by Carolus Linnaeus, the father of Taxonomy. According to this binomial system, the first name implies name of the ‘genus’ (a substantive noun) and the second as ‘specific epithet’ (an adjective or noun). Thus *Homo sapiens* and *Mangifera indica* represent scientific name of man and mango in which *Homo* and *Mangifera* indicate generic names where as *sapiens* and *indica* imply their specific epithets respectively. In actual practice all the rules of International code of Biological nomenclature are followed for providing a scientific name to a biological species which is, however, a technical discourse.

A biological species represents the basic unit of taxonomy and is defined as a group of closely related individuals which are morphologically similar, genetically distinct and reproductively isolated. Many workers consider Taxonomy as synonymous with Systematics; the latter, however, leans more upon phylogenetic (evolutionary) considerations. More recently, a new code known as ‘*phylocode*’ based on phylogeny (ancestry and descent) has been proposed for naming organisms. However, it is yet to replace the conventional code in view of its inherent queries and criticism. Although taxonomic analysis is applicable to every living organism yet its treatment in the present context has been limited to the world of plants particularly flowering plants comprising about 2,45,000 species throughout the world. A few sources for designating the specific epithets of some of these plants are outlined on next page:

Vir Jee

Department of Botany,
Govt. Degree College,
Samba, J&K, India

Table 1. Taxonomic Characterisation of specific epithets in some flowering plants

Character/ Choice	Specific epithet	Scientific Name	English name	Vernacular Name/s
a. Nativity				
i. Continent:				
Asia	<i>asiatica</i>	<i>Centella asiatica</i>	Asiatic Penny wart	Brahmi Bhuti (D)
Europe	<i>europaea</i>	<i>Cuscuta europaea</i>	Large Dodder	Wazul Kukli poat (K)
Africa	<i>africana</i>	<i>Kigelia africana</i>	African sausage tree	Kakdi (D)
Australia	<i>australis</i>	<i>Celtis australis</i>	Hackberry	Brimij (K)
ii. Country:				
India	<i>Indica</i>	<i>Aesculus indica</i>	Horse chestnut	Han Doon (K)
	<i>indicum</i>	<i>Nerium indicum</i>	Red Oleander	Gandela (D)
China	<i>chinensis / sinensis</i>	<i>Ixora chinensis</i>	Chinese Ixora	Van Jwala (D)
		<i>Hibiscus rosa-sinensis</i>	China rose	Gudhal (D)
Japan	<i>japonica</i>	<i>Lonicera japonica</i>	Japanese honey suckle	Madhu sondhi (D)
Philippines	<i>philippensis</i>	<i>Mallotus philippensis</i>	Monkey face tree	Kamila (D), Kaimbil (K)
Nepal	<i>nepalense / nepalensis</i>	<i>Geranium epalense</i>	Nepal Geranium	Bhanda (D)
		<i>Rumex nepalensis</i>	Broad leaved Dock	Abuj (K), Aarbal (D)
Tibet	<i>tibeticum / tibetica</i>	<i>Tanacetum tibeticum</i>	Tansy	Khamchu (L)
		<i>Arabis tibetica</i>	Tibetan Rock-cress	----
Sri Lanka / Ceylon	<i>zeylanicum</i>	<i>Cinnamomum zeylanicum</i>	Cinnamon	Dalcheen (K)
Italy	<i>italica</i>	<i>Setaria italica</i>	Indian millet / Foxtail millet	Shola (K), Kangni (D)
Germany	<i>germanica</i>	<i>Iris germanica</i>	German Iris	Mazar bhuti (D)
Mexico	<i>mexicana</i>	<i>Argemone mexicana</i>	Mexican prickly poppy	Peeli Kandyari (D)
Canada	<i>canadensis</i>	<i>Solidago canadensis</i>	Golden Rod	Sondandi (D)
America	<i>americana</i>	<i>Agave americana</i>	Century Plant	Kaoida (D)
iii. State:				
Mysore	<i>mysorensis</i>	<i>Thunbergia mysorensis</i>	Mysore Clock vine	----
Bengal	<i>benghalensis</i>	<i>Ficus benghalensis</i>	Banyan tree	Bargat / Bardh (D)
Sikkim	<i>sikkimensis</i>	<i>Corydalis sikkimensis</i>	----	----
iv. Province:				
Kashmir	<i>kashmiriana / kashmirianum</i>	<i>Iris kashmiriana</i>	Kashmir Iris	Mazar Mund, Sossan (K)
Ladakh	<i>ladakense</i>	<i>Fagopyru kashmirianum</i>	Kashmir Buckwheat	Troumba (K)
		<i>Taraxacum ladakense</i>	Dandelion	----
v. Locality:				
Zanaskar	<i>zanaskarensis</i>	<i>Astragalus zanaskarensis</i>	Milk Vetch	Deyanko (L)
Bannihal	<i>bannehalensis</i>	<i>Artemisia bannehalensis</i>	Worm wood	Banahali Tschimber (D)
Kishtwar	<i>kishtwariense</i>	<i>Geranium kishtwariense</i>	Cranes bill	----
Pahalgam	<i>pahalgamensis</i>	<i>Impatiens pahalgamensis</i>	Balsam	----
b. Mountain Range				
Alpine region	<i>alpinum / alpina</i>	<i>Thalictrum alpinum</i>	Alpine Meadow rue	Dharu Bini (D)
		<i>Arabis alpina</i>	Alpine Rock- cress	----
Altai	<i>altavicum / altaica</i>	<i>Callianthemum altavicum</i>	Callianthemum	----
		<i>Draba altaica</i>	Whitlow grass	----
Pamir	<i>pamirica</i>	<i>Atriplex pamirica</i>	Orach	----
Tian Shan	<i>tianshanica</i>	<i>Gentiana tianshanica</i>	Tianshan Gentian	----
Caucasus	<i>caucasica</i>	<i>Arabis caucasica</i>	Garden Arabis	----
Pyrenees	<i>pyrenaicum</i>	<i>Lilium pyrenaicum</i>	Pyrenean Lily	----
Himalaya	<i>himalaica</i>	<i>Plantago himalaica</i>	Himalayan Plantain	Khil Chakarpo (L)
	<i>himalayensis</i>	<i>Ermania himalayensis</i>	----	----
	<i>himalayanus</i>	<i>Astragalus himalayanus</i>	Himalayan Milk- Vetch	----
	<i>himalaicus</i>	<i>Eremurus himalaicus</i>	Fox tail Lily / Desert Candle	----
Nilgiri	<i>neelgherrensis</i>	<i>Arcyosperma sneelgherrensis</i>	----	Bulun (K)
c. Habitat				
Aquatic	<i>aquatica</i>	<i>Ipomoea aquatica</i>	Railway creeper	Nali (D)
Sea Shores	<i>maritime / maritimum</i>	<i>Crambe maritima</i>	Sea Kale	----
		<i>Eryngium maritimum</i>	Sea Holly	----

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Terrestrial	<i>terrestris</i>	<i>Tribulus terrestris</i>	Land Celtrops,	Pakhadi (D); Mitcher Kaind (K)
Amphibious	<i>amphibium</i>	<i>Polygonom amphibum</i>	Knot weed	Rumach (K)
Swamps	<i>palustris</i>	<i>Caltha palustris</i>	Marsh Marigold	Guttal (D)
Lakes/Ponds	<i>lacustris</i>	<i>Scirps lacustris</i>	Club rush	----
Mountains	<i>montana / montanum</i>	<i>Clematis montana</i> <i>Baliospermum montanum</i>	Mountain Clematis ----	Chandha (D) Danti (D)
Rocks	<i>rupestris</i>	<i>Viola rupestris</i>	Teesdale Violet	----
Woods	<i>sylvestris</i>	<i>Malva sylvestris</i>	Common Mallow	----
Common/ Waste Places	<i>vulgare</i>	<i>Marrubium vulgare</i>	Hore Hound	Trouper, Gandhsoi (K)
Deserts	<i>desertii</i>	<i>Agave desertii</i>	----	----
Cultivated fields	<i>sativus</i>	<i>Crocus sativus</i>	Saffron/Zafron	Koung (K)
	<i>sativa</i>	<i>Oryza sativa</i>	Paddy	Munjie (D), Dhani (K)
	<i>sativum</i>	<i>Allium sativum</i>	Garlic	Thoam (D), Ruhan (K)
Field edges	<i>arvensis</i>	<i>Convolvulus arvensis</i>	Field bind weed	Hiran Padi (D);Hiranghe /Thurae Posh(K); Teiktelkma (L)
Under-ground	<i>hypogea</i>	<i>Arachis hypogea</i> d. Habit / Form	Ground nut	Dodiyan (D); Jalgoz (K)
Robust	<i>robusta</i>	<i>Shorea robusta</i>	Sal	Sal (D)
Woody	<i>arboreum</i>	<i>Rhododendron arboreum</i>	Rose tree	Burau (D), Chaunh (K)
Grand	<i>grandis</i>	<i>Tectona grandis</i>	Teak	Sagaun (D)
Erect	<i>erecta</i>	<i>Tagetes erecta</i>	Big Marigold	Gutta (D); Jafir Posh (K)
Minute / Small	<i>minutissima</i> <i>minima</i>	<i>Primula minutissima</i> <i>Anagalis minima</i>	Minute Primula Chaffweed	---- ----
Creeping	<i>repens</i>	<i>Trifolium repens</i>	Dutch clover	Batak Nuer (K)
Prostrate	<i>prostrata</i>	<i>Euphorbia prostrata</i>	Prostrate spurge	Suhidudli (D)
Climbing	<i>vinifera</i>	<i>Vitis vinifera</i> e. Leaf	Grape vine	Dachh (K); Daakh (D)
Small	<i>microphylla</i>	<i>Pilea microphylla</i>	Artillery Plant	----
Large	<i>macrophylla</i>	<i>Achillea macrophylla</i>	Sneeze wort	----
Pinnate	<i>pinnata</i>	<i>Azolla pinnata</i>	Water fern	Lal Kandori (D)
Palmate	<i>palmata</i>	<i>Ipomoea palmata</i>	Railway creeper;	Ishki Paicha (D)
Narrow	<i>angustata</i>	<i>Typha angustata</i>	Lesser Indian Reed mace	Dibb/ Aera (D); Paech (K)
Broad (ovate)	<i>ovata</i>	<i>Plantago ovata</i>	Plantain	Ismagul (K)
Dissected	<i>dissectum</i>	<i>Taraxacum dissectum</i>	Cut leaved Dandelion	----
Cylindrical	<i>cylindrica</i>	<i>Sansevieria cylindrica</i>	Spear Sansevieria /Rhino Horn	----
Round	<i>rotundifolium</i>	<i>Geranium rotundifolium</i>	Round leaved cranesbill	----
Lanceolate	<i>lanceolata</i>	<i>Plantago lanceolata</i>	Rib wart Plantain	Gu-li (K)
Cordate	<i>cordata / caudatus</i>	<i>Swertia cordata</i> <i>Amaranthus caudatus</i>	Charaita Amaranth	Charaita (D) Leisi (K), Dorusoil (D)
Filiform	<i>filiformis</i>	<i>Juncus filiformis</i>	Thread Brush	----
Glabrous	<i>glabra</i>	<i>Glycyrrhia glabra</i>	Liquorice	Malhati (D), Shanghir (K)
Pubescent	<i>pubescens</i>	<i>Brachyactis pubescens</i>	----	Tsathi (K)
Tomentose	<i>tomentosa</i>	<i>Waldheimia tomentosa</i>	----	Solocarpo/Ma kungla (L)
Hairy	<i>hispidum</i>	<i>Onosma hispidum</i>	Golden drop	Deemok (L)
Spiny	<i>spinosa</i>	<i>Capparis spinosa</i>	Caperbush	Kalbada (D), Kapra (L)
Variagate	<i>variegata</i>	<i>Bauhinia variegata</i>	Variagated Bauhinia / Mountain ebony	Katroad (D)
Opposite	<i>oppositifolia</i>	<i>Colebrookea oppositifolia</i>	----	Chiti suhali (D)
Perforated	<i>perforatum</i>	<i>Hypericum perforatum</i>	Common St. John's wart	Basantlu (D); Basant (K)

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f. Flower				
Large	<i>grandiflora</i>	<i>Magnolia grandiflora</i>	Bull bay/Great Laurel	Baraf Champa (D)
Elegant	<i>elegans</i>	<i>Zinnia elegans</i>	Youth & old age plant	----
Fragrant	<i>fragens</i>	<i>Myristic fragrans</i>	Nutmeg	Japhal (D)
Odorous	<i>odorata</i>	<i>Viola odorata</i>	Sweet violet	Bunafsha (K)
Foetid	<i>foetidus</i>	<i>Helleborus foetidus</i>	Stinking Hellebore	----
Aromatic	<i>aromaticum</i>	<i>Syzygium aromaticum</i>	Clove	Raung (K)
Globose	<i>globosa</i>	<i>Gompherena globosa</i>	Bachelor's button	Gultam (D), Maharaz Posh (K)
Stellate	<i>stellata</i>	<i>Tulipa stellata</i>	Tulip	Maghuna (D)
White	<i>alba</i>	<i>Rosa alba</i>	Indian white rose	Safed Gulab (K)
Rosy	<i>roseus</i>	<i>Catharanthus roseus</i>	Periwinkle	Sada suhagan (D)
Violet	<i>violaceum</i>	<i>Aconitum violaceum</i>	Aconite	Mori, Mohand (K)
Purple	<i>purpureus</i>	<i>Crocus purpureus</i>	Purple crocus	----
Golden	<i>aureus</i>	<i>Epipremnum aureus</i>	Devils Ivy/ Golden	----
Yellow			Pothos	
g. Fruit				
Large	<i>maxima</i>	<i>Cucurbita maxima</i>	Pumpkin	Parim Al (K)
Cylindrical	<i>cylindrica</i>	<i>Luffa cylindrica</i>	Vegetable Sponge	Tori (D)
Black	<i>niger /</i>	<i>Hyoscyamus niger</i>	Henbane	Gayal Matang (L), Bazir Bhangh (K)
	<i>nigrum</i>	<i>Solanum nigrum</i>	Black night shade	Kambiae (K), Kayankothi (D)
Hollow	<i>fistulosa</i>	<i>Cassia fistulosa</i>	Indian laburnum / Golden Shower	Krangal (D), Faloose (K)
4-Seeded	<i>tetrasperma</i>	<i>Vicia tetrasperma</i>	Smooth Tare	----
	<i>religiosa</i>	<i>Ficus religiosa</i>	Peepal	Pipal (D)
	<i>sanctum</i>	<i>Ocimum sanctum</i>	Holy Basil	Tulsi (D)
	<i>sacra</i>	<i>Saussurea sacra</i>	Sacred Saussurea	Juge Padsha (K)
i. Commemorative				
Hooker	<i>hookeriana</i>	<i>Iris hookeriana</i>	Hooker's blue	Taigma (L)
Bentham	<i>benthami</i>	<i>Arnebia benthami</i>	Rattan-jot	Gao-zaban (K)
Roxburgh	<i>roxburghii</i>	<i>Putranjiva roxburghii</i>	Child life tree	Jeopota (D)
Wallich	<i>wallichii</i>	<i>Cirsium wallichii</i>	Horse Thistle	Bagoul (D)
	<i>wallichiana</i>	<i>Ulmus wallichiana</i>	Himalayan elm	Manu (D), Bran (K)
Royle	<i>Roylei</i>	<i>Delphinium roylei</i>	Larkspur	Mori (K), Nirbisi (D)
Anderson	<i>andersonii</i>	<i>Thalaspia andersonii</i>	Pennycress	----
Duthie	<i>duthiei</i>	<i>Kobresia duthiei</i>	----	----
Aitchinson	<i>aitchisonii</i>	<i>Epilobium aitchisonii</i>	Willow Herb	----
De-Candolle	<i>candolii /</i>	<i>Bupleurum candolii</i>	Hares Ear	Jadh-jari (D)
	<i>candolleanus</i>	<i>Astragalus candolleanus</i>	Milk-Vetch	Mouch kanda (D)
Drummond	<i>drummondii</i>	<i>Phlox drummondii</i>	Pride of Texas	Taara phool (D)
Thomson	<i>thomsonii</i>	<i>Swertia thomsonii</i>	----	----
Moorcroft	<i>moorcroftiana</i>	<i>Salvia moorcroftiana</i>	Moorcroft Sage	Thuth (D), Sholer (K)
Strachey	<i>stracheyi</i>	<i>Allium stracheyi</i>	Mountain Garlic	Keir (D)
Falconer	<i>falconeri</i>	<i>Cirsium falconeri</i>	Silver thistle	Dharu bous (D)
Jacquemont	<i>jacquemontiana</i>	<i>Parrotiopsis jacquemontiana</i>	Hazel tree	Pohu (K)
	<i>jacquemontianus</i>	<i>Senecio jacquemontianus</i>	Ragwort	Pahand (K)
Hardwick	<i>hardwickii</i>	<i>Valeriana hardwickii</i>	Valerian	----
Hoffmeister	<i>hoffmeisterianus</i>	<i>Rubus hoffmeisterianus</i>	Bramble	----
Stapf	<i>stapfiana</i>	<i>Poa stapfiana</i>	Rap grass	----
Griffith	<i>griffithii</i>	<i>Chrysanthemum griffithii</i>	Daisy (guldaudi)	Tschakairkah (L)
Stewart	<i>stewartii</i>	<i>Veronica stewartii</i>	Speedwell	----
Inayatullah	<i>inayati</i>	<i>Primula inayati</i>	Primrose	----
Hartmann	<i>hartmanii</i>	<i>Festuca hartmanii</i>	Fescue	----
Meebold	<i>meeboldii</i>	<i>Saxifraga meeboldii</i>	Saxifrage	----
Winter-bottom	<i>winterbottomii</i>	<i>Draba winterbottomii</i>	Whitlow grass	----
Kachroo	<i>kachrooi</i>	<i>Allium kachrooi</i>	----	----
Schlaginweit	<i>schlaginweitii</i>	<i>Euphrasia schlaginweitii</i>	Eyebright	----

Vernacular names: D = Dogri, L = Ladakhi, K = Kashmiri