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RESEARCH ARTICLE

PHILOLOGICAL STUDY OF SCIENTIFIC PLANT NAMES: THEIR SIGNIFICANCE AND LESSONS LEARNED

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ABSTRACT

The present investigation unfolded 32 generic and 30 specific epithets philologically and thereby disclosed the hidden treasure trove. The former are founded based on 19 different criteria, whereas the latter are coined on 23 criteria. Coiners have incorporated observations on plant features like colour, shape, fragrance, habitat of plants, flowering period, period of opening of flowers, specific observations and behavior of plant parts medicinal uses cosmetic uses, poisonous nature of plants, chemical contents, animal organs, miscellaneous uses, food value, use for musical instrument and pillars, etc. Philological study thus help reveal past man-plant-animal relationships. Such study may add to the information of even modern man and may be useful for his welfare. Moreover, it would entice and enthuse learners of plant sciences.

INTRODUCTION

Biodiversity, Laws and Teaching

The importance of biodiversity on the blue planet is multifold. Studies on biodiversity is geared up recently by some enactments like Earth summit (1992) held at RiodeJanero (Brazil). Thence, every gene, species and ecosystem is receiving a serious thought, As a result, some other rules or laws are being passed internationally and nationally e.g. WTO (Word Trade Organization), CBD (Rights), TRIPS (Trade Related Aspects of Intellectual Property Rights), Biodiversity Act (2002), etc. These restrict to some extent the access of learners or teachers. These lawful movements are becoming responsible in negating biodiversity studies in recent times. It is a serious cry of scientific community especially who those study basic biology. Students, teachers or research workers are not being allowed even enter into the forests. Some rulers or governments are thereby enforcing for not to collect plants. Some hurdles are being raised while visiting nature study. Even recent university academic curricula have not included collection of plants or animals. Some species are clearly banned for using in laboratory studies. Instead, simply photographs, figures or internet/websites are advised to complete the observations even by beginners. All these academic (or unacademic) events distance learners/teachers from nature or biodiversity. Moreover, more attraction and attention to applied disciplines of biology have perforce caused running away from basic plant or animal sciences. One such basic science is taxonomy. It is thought to be the basis for all other botanical or zoological disciplines. It deals with three functions *viz*., identification, classification and nomenclature.

Plant Names and Teaching

The art of naming objects is a science called nomenclature which help indicate relationship and aid in communication. Names are either common, local, vernacular or scientific (botanical or zoological). The scientific naming is adapted because of internally accepted rules of nomenclature included in ICBN (International Code of Botanical Nomenclature). Common names are unsatisfactory, of limited usage, too many and variable. All these difficulties are solved by adapting scientific names. According to Principle V of ICBN, scientific names are to be considered Latin regardless of their derivation. This sometimes rendered the name unrecognizable from their real sources. Routing teaching in botany has been reduced to cramming mere of few characters or remembering few plant

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names. Learners are seldom exposed to their meaning and sources of origin.

Past Research

This is probably a reason of disinterest in learning of plant science. To redeem this situation, the present author and his co-workers attempted at revealing the original source of names and their meaning. Such attempts disclose many natural phenomena, knowledge of ancients and their wisdom. (*cf.* Patil, 2008; Patil and Patil, 2013; Pawar and Patil, 2012a,b,). If all these acknowledged to the learners, they will certainly feel interested.

METHODOLOGY

It is, therefore, some more scientific plant names are presently analysed philologically revealing some hidden science for the welfare of modern man. Names are arranged alphabetically, followed by family name in parenthesis. Meaning and reasons for coining are separately explained below.

Enumeration

Generic Names

1.	Acorus (Araceae): Kore-pupil of eye; because of medicinal benefit of a species against a disease of eyes.
2.	Alyssum (Brassicaceae): A-not, lyssa-madness; ancients believed that plants of some species have power to act against madness.
3.	Anchusa (Boraginaceae): Anchusa-a cosmetic paint for skin; ancients employed *A.tinctoria* for skin coloring.
4.	Baphia (Fabaceae): Bapto-to dye; wood yields a red dye known as canwood.
5.	Capsicum (Solanaceae): Kapto-to bite; in reference to biting taste of fruits.
6.	Cimicifuga (Ranunculaceae): Cimex-a bug; fugo-to drive away; one of its species *C.foetida* is a insect repellent, thus it refers to insecticidal properties.
7.	Cymbidium (Orchidaceae): Kymbe-a boat; referring to hollow boat-shaped recess in the labellum.
8.	Cypripedium (Orchidaceae): Kypris or cypris-a name of Venus, pedilon-a slipper; It is called Venus's or ladies slipper. It is coined after shape of flowers.
9.	Delima (Dilleniaceae): Delino-to file, to shave off; leaves are useful for wood polishing.
10.	Dysoxylum (Meliaceae): Dys-unpleasent, xylon-wood; because of unpleasant odorous wood.
11.	Elephantopus (Asteraceae): Elephantos-an elephant, pous-foot; the radical leaves bear similarity to an elephant's food.
12.	Ermania (Brasicaceae): Er-spring, manos-wide; in reference to the spring period of flowering.
13.	Fraxinus (Oleaceae): Phrasso-fencing, to enclose; one of species of the genus was employed for fencing, hence the name.
14.	Galega (Fabaceae): Gala-milk, ago-to lead; the plants are known to increase milk if fed to animals.
15.	Gyrocarpus (Combretaceae): Gyro-to turn round, karpos-fruit; while facing down, the fruits spin in the air.
16.	Haematoxylon (Mimosaceae): Haima-blood, xylon-wood; referring to the red dye obtained from heart wood of one of species of the genus.
17.	Hippuris (Haloragaceae): Hippos-a mare, our- a tail; the stem-axes simulates a tail of mare.
18.	Hygrophila (Acanthaceae): Hygros-moist, phileo-to love; indicative of aquatic habitat of the plants.
19.	Impatiens (Geraniaceae): Impations-impatient; when touched the fruits bust open elastically and the seeds are thrown forcibly.
20.	Lagotis (Scorphulariaceae): Lagos-a hare, otos-an ear; suggestive of similarity between ears of hares and calyx of one of the species.
21.	Leonurus (Lamiaceae): Leon-a lion, oura-a tail; alluding to the resemblance of inflorescence of a species.
22.	Lavandula (Lamiaceae): Lavo-to wash, to clean; plants (their contents) are used in making of soaps.
23.	Menispermum (Menispermaceae): Mene-the moon, sperma-seed; the fruit is like crescent –shaped moon, hence the name.
24.	Menyanthes (Gentianaceae): Mene-cresent shaped moon, anthos-flower; in allusion to period of flowering.
25.	Nyctanthes (Oleaceae): Nyctos-night, anthos-flower; the flowers open at night and abscise at the break of a day.
26.	Osmorrhiza (Apiaceae): Osme-scent, rhiza-root; suggesting sweet scent of roots.
27.	Primula (Primulaceae): Primus-the first; indicating early blooming of the plants.
28.	Potamogeton (Potamogetonaceae): Potamos-river, geiton-near; plants that grow near and in river.
29.	Polygala (Polygalaceae): Poly-much, gala-milk; cattle yield more milk if the plants of this species are consumed.
30.	Sambucus (Caprifoliaceae): Sambuca-a musical instrument; wood one of the species *viz.*, *S.edulus* (elderwood) is used to in making the said instrument.
31.	Soymida (Meliaceae): Somida-Telugu deity; in reference to the sacred pillars made from wood of *S.fibrifuga.* This is indicative of potentiality of the said wood.
32.	Theobroma (Sterculiaceae): Theos-god, broma-food; it is suggested as the food of gods.

Specific Names

1.	NymphaearubraRoxb. exSalisb. (Nymphaeaceae): Rubra-red; flowers are red.
2.	Brasicanigra (L.) Koch. (Brassicaceae): Nigra-black; seeds are black.
3.	Capparis decidua (Forsk.) Edgew. (Capparidaceae): Decidua-deciduous, falling off early;leaves fall early and plants are rendered leafless for considerable period of life.
4.	Abelmoscusesculentus (L.) Moench. (Malvaceae): Esculentus-edible; green fruits are used as vegetable.
5.	Ceibapentandra (L.) Gaertn. (Bombacaceae): Pentas-five; androecium-group of stamens; flowers contain total five stamens.
6.	Peganumharmala L. (Zygophyllaceae): Harmal-a local name for the said species. It is latinised.
7.	Averrhoabilimbi L. (Averrhoaceae): Bilimbi-a local name for the said species. It is latinised.
8.	Piscidiapiscipula (L.) Sarg. (Fabaceae): Pisces-fish; plants are employed for fish stupefying.
9.	Zorniadiphylla (L.) Pers. (Fabaceae): Di-two, phylla-leaves; plants bear two leaves at each node.
10.	Gardenia gummiferaL.*f.* (Rubiaceae): Gum-gum;fero-to bear, extract from the plant is called locally 'Dikemali' which is used to treat disease of tooth.
11.	RotulaaquaticaLour. (Boraginaceae): Aquatic-denizen of aquatic places.
12.	AlectraparasiticaA.Rich. (Scrophulariaceae): Parasitica-The said species is parasitic (root parasite).
13.	Cinnamomumcamphora (L.) Nees&Ebern. (Lauraceae): Camphor-a plant product that keeps insects away from clothes.

14.	CucurmaaromaticaSalisb. (Zingiberaceae): Aromatica-aromatic; the tubers are aromatic.
15.	CrataevareligiosaForst. (Capparidaceae): Religiosa-religious;this species is planted near temples. The three-leaved condition is alluded to a trident and hence attributed to Lord Shiva. Its name is changed now to *C. tapia* L.
16.	SansevieriacylindricaBoj. (Agavaceae): Cylindric-terete or cylindric; leaves are cylindric.
17.	Atropa belladonna L. (Solanaceae): Bella-beautiful; dona- a lady; the fruits are used as a cosmetic and to dilate pupils so as to give a handsome appearance.
18.	Clematis gourianaRoxb. ex DC. (Ranunculaceae): Gouri-another name for Hindu goddess Parvati; the species is after her name.
19.	Desmodiumgyrans DC. (Fabaceae): Gyrus-a circle; peculiar jerky motion of the lateral leaflet of this species is emphasised.
20.	Hyptissuaveolens (L.) Poit. (Lamiaceae): Suave-sweet; oleo-smell; the plant species is fragrant.
21.	Indigoferatinctoria L. (Fabaceae): Tingo-colour; indigo, a dye;it is extracted from the plants of this species.
22.	Strychnosnux-vomica L. (Strychnaceae): Nux-a nut; vomica-to cause vomiting; the plant species being poisonous, causes vomiting.
23.	Ipomoea turpethum R.Br. (Convolvulaceae): (In Sanskrit) tryavrut-having three; this species has three properties *viz.*, cathartic, antibilious and antiphlegmatic.
24.	Leptadeniapyrotechnica (Forsk.) Decne. (Asclepiadaceae): Pyr-fire, technica-special purpose; the wood is useful as fuel.
25.	SemecarpusanacardiumL.*f.* (Anacardiaceae): Ana-like, kardia-heart; referring to the heart-shaped fruits.
26.	SterculiaurensRoxb. (Sterculiaceae): Uro-burn; fruits being densely covered by stinging bristles which if touched acute burning.
27.	Thespesia lampas (Cav.) Dalz. &Gibs. (Malvaceae): Lampas-brilliant; the plants bear bright yellow flowers.
28.	Vitisvinifera L. (Vitaceae): Vinifera-vine producing; fruits are useful in preparation of wine.
29.	Feroniaelephantanum Corr. (Rutaceae): Elephantanum-pertaining to elephants; elephants consume the fruits.
30.	Cestrum diurnum L. (Solanaceae): Diurnum-day; flowers open during day time.

RESULTS AND DISCUSSION

Necessity of Scientific Names

As and when objects, whether biotic or abiotic, become familiar to human intelligence, mankind always attempt to attribute names. He thereby avoids describing again these objects in later communication and reference. Obviously, communication is rendered easier. Local plant names are extremely restricted in use. A plant species may have one or more local names in the world or even the same name may be in vogue for different plant species.

Local names thus run into trouble and are inadequate to pass on information internationally. This is why ICBN compelled using scientific plant names. ICBN alsoinsists that the names that plants possess would be deemed to be latin although they are chosen from any source or language. Moreover, plant names are binomial, the former generic and latter one specific. The plant names have thus Latin jacket and hence sometimes they do not convey their meaning and source of reference on which it is based by their coiners. They are accepted as such and even used in communication without knowing them in proper sense. It is, therefore, necessary to analyse them. Attempts on the similar line have been and unlocked the treasure of knowledge of the ancients or coiners of plant names (*cf.* Patil, 2008; Patil and Patil, 2012; Pawar and Patil, 2012a,b). This communication included 32 generic names and 30 specific names from other genera and analysed philologically to disclose the treasure trove hidden in them.

Criteria Employed

Observations, experience and human sentiments find place in naming plants. These vary throughout the world (*cf.* Patil, *loc.cit.* Patil and Patil, *loc.cit.*Pawar and Patil*loc. cit.*). Total 32 generic names have been presently investigated for their bases. As many as 19 criteria *vis-à-vis* utilities, observations and sentiments appeared useful for naming them *viz.*, (1)medicinal, (2) cosmetic, (3) dye yielding, (4) taste (biting/hot), (5) insect repellent, (6) shape (boat, slipper or half-moon shaped), (7) wood polishing, (8) odour, (9) animal (food of elephant, tail of a mare or lion), (10) flowerinig period, (11) fencing, (12) galactogogue, (13) natural observations (spinning of fruits in air, bursting of fruits, opening of flower), (14) habitat (aquatic), (15) soap-making, (16) fragrance, (17) musical instrument making, (18) making of pillars and (19) food value. These criteria are, however, selected and incorporated from one of the species of a genus. It is so because a genus is a group of closely related species. In case of specific epithet, it is based straightway from the species name itself. For example, they are based on criteria obtained from 30 specific names of the present account: (1)colour (various plant parts and their brightness), (2) leafless nature, (3) food value, (4) number of plant parts, (5) local name (subsequently latinised), (6) fish stupefying, (7) gum yielding, (8) habitat (aquatic), (9) mode of life (parasitic), (10) chemical content (camphor, dye), (11) aroma or fragrance, (12) religiousness, (13) deity, (14) natural observations (leaf movement), (15) shape (cylindric, heart-shaped), (16) cosmetic, (17)poisonous nature, (18) multiple medicinal properties, (19) utility as fuel, (20) annoyance, (21) wine preparation, (22) consumption of fruits by elephants and (23) period of flower opening. Thus totally 23 criteria are found useful for coining specific plant names.

Naming: A Natural Phenomenon

Naming of plants, especially local (vernacular) ones is instinctive. However, scientific naming is at first instinctive and then rendered methodological and lawful. While doing so, botanists also, as a common human-being, have certain observations. He is quite sensitive to the social and natural phenomena. These are usually integrated in the process of naming scientifically. Man has wonderful capacity to discriminate between the objects in his surroundings. This human instinct and heredity is naturally employed in naming the objects, whether biotic or abiotic. Philological study of scientific plant names enthuse especially the pioneer learners. It is, therefore, important to explain them at proper time.

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