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A PURVIEW OF PHYTOETYMOLOGICAL STUDY ON INDIAN ORCHID SPECIES

[1]S. K. TAYADE AND * [2]D.A. PATIL

[1]POST-GRADUATE DEPARTMENT OF BOTANY, P.S.G.V.P. MANDAL'S ARTS, SCIENCE AND COMMERCE COLLEGE, SHAHADA, DIST-NANDURBAR – 425409, INDIA.

[2] POST-GRADUATE DEPARTMENT OF BOTANY, S.S.V.P.SANSTHA'S L.K.DR.P.R.GHOGREY SCIENCE COLLEGE, DHULE-424005 (M.S.), INDIA.

(*FORMER PROFESSOR & PRINCIPAL)

***Corresponding author's e-mail*: drsktayade@gmail.com**

ABSTRACT:

Names are important means for effective communication and reference. Etymology of scientific plant names connotes relationships between a botanist or author with the plant world. The present study disclosed hitherto unstudied as many as 36 bases of coining 92 species names pertaining to 46 genera of the Indian Orchidaceae. These bases are categorized as: (i) Plant features (27 bases), (ii) Indian features (08 bases) and (iii) patronyms after commemorated botanists (who botanised orchid flora or Indian territory in past and modern period). The utilitarian basis of coining names has remained largely untouched by the coiners of orchid specific epithets. Mostly, the bases of specific names are neglected or overlooked while keying out orchid taxa and even in phytographical descriptions in many Indian flora published to date. The present authors seek attention for inclusion of etymology of plant names in syllabi of Botany in Indian universities and colleges. Interpretation of specific epithets shows relation with land, life and legends of a region. Etymology of plant names if revealed to the learners of plant taxonomy, it would entice them nay, enthuse to study plant science in correct perspective.

KEYWORDS: *Etymology, India, Orchidaceae.*

INTRODUCTION:

The syllable 'Orchid' is derived from the Greek word 'Orchis' which meant the testicle because the subterranean tubers of some species of the genus *Orchis* are shaped like it (Patil, 2007). The family name Orchidaceae is after the largest genus *Orchis*. The earliest reference to orchidaceous taxa in Indian medicinal system is found in Charak Samhita (1000-600 BC.) for therapeutic potential of some species such as Rasna (*Vanda roxburghii* R.Br.), Jeevanti [*Ephemerantha macrae* (Linn.) Hunt & Summerhayes], Munjatak (*Eulophia compestris* Wall. and Ridhi-Vridhi (*Orchis* spp.) (Kaushik, 1983). During pre-independence period of India, the earliest reference to 20 orchid species is met with Rheede's 'Horti Indici Malabarici' (12 volumes) (Rheede, 1678-1693; Manilal, 2012). Majority of these (15 species) are documented for their native medicinal utilities in Malabar region (India). The pioneer floristic work by Roxburgh (1824) included 57 orchid species mainly from Sylhet district of the earstwhile Indian Assam state. The taxonomic status many of these earlier reported species has been changed due to recent nomenclatural changes. Roxburgh's classic work lit the lamp of 'Scientific Indian Botany' and the names of marathon runners in Indian floristic studies are found in several surveys, compendia, manuals, floras and many landmark contributions.

There is hardly any person who is not attracted towards orchids because of their equisite beauty, variety of fragrance, brilliancy of colors, long-standing quality of flowers, manifold shapes, variations in form, attractive habits, complex and specialised morphoforms and interesting biological phenomena. Orchids fascinated people over since their discovery by Theophrastus (370-385 BC.), the 'Father of Botany' in his 'De Historia Plantarum' (1644). This fascinating group of flowering plants also caught our attention. This family is investigated in India and abroad on various grounds but phytoetymological study on orchids have largely remained neglected. The present attempt is to bring natural human instinct to fore front while coining botanical names with particular emphasis on some orchid species on Indian territory.

METHODOLOGY:

The names of Indian orchid species have been selected particularly from various national and regional floras authored by Hooker (1894), Cooke (1958), Gamble (1957), Mathew (1991), Sinha (1999), Deb (1983), Mohanan Sivadasan (2002), Hynniewta *et al*. (2000), Dhaliwal *et al*., (1999), Aswal and Mehrotra (1999), Manilal and Sivarajan (1982), Patil (2003), Roxburgh (1824), Karthikeyan *et al*. (1989), besides some recent publications as noted under cited literature. These have been analysed etymologically. The root-words have been verified by consulting

phytographical descriptions and keys in all these cited literary sources. The names borrowed are kept as in original sources of floristic literature. The bases of coining plant names are discussed pertinently in this communication.

Etymological Enumeration:

Part-I: Names Based on Plant Features:

(1) Names after plant size:

1. *Dendrobium nanum* Hook. *f.*
   Plants being relatively small (Gamble, 1957; Mathew, 1991).
2. *Eria nana* A. Rich.
   Stem reduced to small pseudobulbs and plants being small (Mathew, 1991; Mohanan and Sivadasan, 2002).
3. *Poneorchis nana (*D.Don) Soo
   Plant being small and weak (Aswal & Mehrotra, 1999).
4. *Thelasis pygmaea* Lindl.
   Plants being small (Gamble, 1957).

(2) Names after number of leaves:

5. *Disperis monophylla* Blatt. ex C.E.C. Fischer
   Plants with a single leaf (Gamble, 1957).
6. *Habenaria monophylla* Collette & Hemsl.
   Plant bearing a solitary leaf (Hooker, 1894.).
7. *Habenaria diphylla* Dalz.
   Plants decked with generally two leaves (Cooke, 1958; Gamble, 1957; Mohan & Sivadasan, 2002).
8. *Thelasis bifolia* Hook. *f.*
   Plants provided with two opposite leaves (Hooker, 1894).

(3) Names after absence leaves:

9. *Epipogium aphyllum* (F.W.Schmidt) Swartz
   Plants devoid of leaves (Hooker, 1894).

(4) Names after foliage nature:

10. *Habenaria foliosa* A.Rich.
    Stems studded with leaves (Hooker, 1894).
11. *Goodyera foliosa* (Lindl.) Benth. ex Clarke
    Leaves being many (Hynniewta *et al*., 2000).

(5) Names after cylindric or terete leaves:

12. *Aerides cylindricum* Lindl.

Plants bearing terete leaves (Gamble, 1957; Matthew, 1991).

13. *Luisia teretifolia* Gaud.

Leaves being terete (Manilal & Sivarajan, 1982).

14. *Vanda teres* Lindl.

Leaves being terete (Deb, 1983).

(6) Names after leaf length:

15. *Thelasis longifolia* Hook. *f*.

Plants with solitary but long leaf (Hooker, 1894).

16. *Cymbidium longifolium* D.Don

Leaves being longer (2-3 ft.) (Hoker, 1894).

(7) Names after longer floral segment:

17. *Habenaria longicorniculata* J. Graham

Spur in flowers being considerably longer (Mathew, 1991; Patil, 2003) (more than five cm long).

(8) Names after fimbriate floral structure:

18. *Cirrhopetalum fimbriatum* Lindl.

Petals fimbriate or fringed with cilia (Cooke, 1958).

19. *Habenaria fimbriata* W.

Lip in flowers being fimbriate (Gamble, 1957).

(9) Names after 2-lobed floral segments:

20. *Calanthe biloba* Linidl.

Lip in flowers being bilobed (Hynniewta *et al*., 2000).

21. *Liparis biloba* Wight

Lip in flowers being bilobed (Gamble, 1957).

(10) Names after flower colours:

22. *Acanthephippium bicolour* Lindl.

Flowers being yellow and spotted with red (Gamble, 1957).

23. *Bulbophyllum fusco-purpureum* Wt.

Flowers being dark purple (Gamble, 1957).

24. *Phais flavus* (Bl.) Lindl.

Flowers colored yellow (Deb, 1983; Hynniewta *et al*., 2000).

25. *Thunia alba* (Lindl.) Reichb.

    Flowers colored white (Hynniewta *et al*., 2000).

26. *Vanda bicolour* Griff.

    White flowers but tinged violet (Hynniewta *et al*., 2000).

(11) Names after fragrance or odour:

27. *Bulbophyllum odoratissimum* (J.E.Sm.) Lindl.

    Flowers being fragrant (Chowlu *et al*., 2013).

28. *Habenaria suaveolens* Dalzell

    Flowers emit fragrance (Cooke, 1958).

29. *Aerides odoratum* Lour.

    Flowers being fragrant (Gamble, 1957).

(12) Names after number of flowers:

30. *Coelogyne uniflora* Lindl.

    Flowers being solitary (Gamble, 1957).

31. *Goodyera biflora* (Lindl.) Hook *f*.

    Plants bearing usually two flowers (Hooker, 1894).

32. *Pecteilis triflora* (D.Don) Tang & Wang.

    Plant bearing generally three flowers (Pankaj Kumar *et al*., 2009).

(13) Names after size of a bulb:

33. *Dendrobium microbulbon* A. Rich.

    Pseudobulbs being small (Cooke, 1958).

(14) Names after resemblance of plants:

34. *Gastrodia orabanchoides* (Falc.) Benth.

    This species is similar being leafless, root-parasitic and pale yellow-brown like the species of the genus *Orabanche* (Dhaliwal & Sharma, 1999).

35. *Habenaria commelinifolia* (Roxb.) Wall. ex Lindl.

    Leaves simulating to those species of *Commelina* (Cooke, 1958).

(15) Names after gramineous foliage:

36. *Dendrobium graminifolium* Wt.

    Leaves resembling grass leaves (Gamble, 1957).

37. *Eulophia graminea* Lindl.

    Leaves being grass-like (Gamble, 1957).

(16) Names after leaf arrangement:

38. *Gastrochilus distichus* (Lindl.) O.Ktze.

Leaves being 2-ranked (Hynniewta *et al*., 2000).

(17) Names after gemma-like structure:

39. *Schoenorchis gemmata* (Lindl.) J.J.Sm.

Spur in flowers with two small calli within (probably thought gemma-like) (Hynniewta *et al*., 2000).

(18) Names after plicate leaves:

40. *Nervilia plicata* Schltr.

Leaves being plicate (Gamble, 1957).

41. *Pogonia plicata* Lindl.

Leaves being strongly plicate (Cooke, 1958).

42. *Spathoglottis plicata* Bl.

Leaves being plaited or plicate (Sinha, 1999).

(19) Names after fleshyness:

43. *Habenaria crassifolia* A. Rich.

Leaves being fleshy as the crassulacean taxa (Cooke, 1958; Gamble, 1957).

(20) Names after flattened structure:

44. *Oberonia platycaulon* W.

Scapes flat and very broad (Gamble, 1957).

(21) Names after shapes and color:

45. *Dendrobium haemoglossum* Thw.

Lip in flowers being tongue-shaped and tinged red (haem-blood; glossum-tongue) (Gamble, 1957).

(22) Names after typology of inflorescence:

46. *Bulbophllum umbellatum* Wall.

Inflorescence being umbell type (Chowlu *et al*. 2013).

(23) Names after plant structure orcheate:

47. *Eulophia ochreata* Lindl.

Leaf-sheaths being ochreate (Gamble, 1957).

(24) Names after dense inflorescence:

48. *Geodoru densiflorum* Schlechter

Flowers being crowded in decurved, compact racemes (Gamble, 1957).

(25) Names after robust nature:

49. *Epipactis gigantea* Daugl. ex Hook.

Flowering stems being robust and erect (Dhaliwal & Sharma, 1999).

50. *Pecteilis gigantea* (J.E.Smith) Raffin.

Plant herbaceous but robust (Mohanan & Sivada, 2002).

(26) Names after root-system:

51. *Cymbidium macrorhizon* Lindl.

Root-stock elongated, branched, jointed and fleshy rendering it conscicuous (Hynniewta *et al*., 2000).

(27) Names after resupination in flowers:

52. *Liparis resupinata* Ridl.

Dorsal sepal (tepal) is reflexed and lip (tepal) deflexed from base. This (probably) led to original author to consider a case of 'resupination' (which is generally observed in orchids) (Yonzone *et al*., 2000).

Part-II: Name Based on Indian Features:

(1) Names after Indian islands:

53. *Anoectochillus nicobaricus* N.P.Balakr. & P. Chakrab.

Nicobar island denoted.

54. *Eria andamanica* Hook.*f*.

55. *Malleola andamanica* N.P. Balakr. & N. Bhargava.

56. *Vanilla adamanica* Rolfe

Andaman island finds place in these names.

(2) Names after Indian states:

57. *Biermannia arunachalensis* A. N. Rao

58. *Epigeneium arunachalense* A. N. Rao

59. *Gastrochilus arunachalensis* A. N. Rao

After Arunachal Pradesh, a north-western Himalayan state of India.

60. *Bulbophyllum keralense* M. Kumar & Sequiera

After Kerala, a south-western state of India.

61. *Bulbophyllum manipurense* C.S. Kumar & P.C.Kumar

62. *Schoenorchis manipurensis* U.C. Pradhan

After Manipur, a north-western state of India.

63. *Chrysoglossum assamicum* Hook. *f*.

After Assam, a north-western state of India.

64. *Dendrobium meghalayense* Y. Kumar & S. Chowdhury.

After Meghalaya, a north-western state of India.

65. *Nephelaphyllum sikkimensis* (Hook. *f*.) Karthik.

After Sikkim, a north-eastern Himalayan state of India.

(3) Names after Indian cities or towns:

66. *Bulbophyllum mysorense* (Rolfe). J.J. Sm.

Mysore, a erstwhile southern state of India, presently and also in historical period of India, Mysore is also a name of a city.

(4) Names after India as a nation:

67. *Acriopsis indica* Wight

68. *Pterocaras indicum* Punekar

Specific epithet coined after India itself.

(5) Names after Indian mountains:

69. *Bulbophyllum neilgherrense* Wight.

After Neigheri, a mountainous range in sout western ghats of India.

70. *Dendrobium anamalayalam* Chandrabab, V. Chandras & N.C.Nair.

After hilly ranges of south western ghats of India.

71. *Gastrochilus garhwalensis* Z.H.Tsi.

After Garhwal Himalaya (Western Himalaya) in Uttarakhand state of India.

72. *Agrophyllum khasianum* Griff.

73. *Dendrobium khasianum* Deori

74. *Nervilia khasiana* (King & Pantl.) Schltr.

After Khasi Hills in north-western Himalayan region, particularly in Assam state.

75. *Neottia nandadeviensis* (Hajra) Szlach.

After Nandadevi hills in western Himalaya in particularly Uttaakhand state.

76. *Oberonia agastyamalayana* C.S.Kumar

After Agastyamalai mountain in south-western ghats.

(6) Names after geographical regions:

77. *Bulbophyllum silentvalleyana* M.P.Sharma & S.K.Srivast.

78. *Gastrodia silenvalleyana* C.S.Kumar, P.C.Kumar, Sibi & S. Anil Kumar

After silent valley region in southern India in Kerala state.

79. *Crepidium malabarica* (Marg. & Szlach.) M.H. Shaw.

80. *Ipsea malabarica* (Rchb. f.) Hook *f*.

After Malabar region in southern India.

81. *Oberonia wynadensis* Sivad. & R.T.Balakr.

Wynad part of south-western ghats in Kerala state.

82. *Neottia kashmiriana* (Duthie) Beauv.

After Kashmir region of northern part of India.

83. *Peristylus kumaonensis* Renz.

After Kumaon Himalayan region.

(7) Names after Indian Hill-Stations:

84. *Dendrobium darjeelingensis* U.C.Pradhan

After Darjeeling, a Hill-Station in Himalayan region of West Bengal state of India.

85. *Habenaria panchganiensis* Sant. & Kap.

After Panchgani, a Hill-Station in north-western ghats of Maharashtra state.

(8) Names after neighbouring country:

86. *Pomatocalpa bhutanicum* Balakr.

After Bhutan, a neighbouring country, adjacent to boundary of India in Himalayan region.

Part-III: Names commemorating Indian Botanists:

(1) 87. *Biermannia jainiana* S.N. Hedge & A.N.Rao.

Dr.S.K.Jain, Former Director, Bot.Surv.India is comemurated for his outstanding contribution to Indian floristic studies.

88. *Bulbophyllum rheedei* Manilal and C.S.Kumar Rheede H.A. Van, the author of 'Horti Indici Malabarici' (12 Vols.), a botanical annal in Indian floristic studies and a socio-cultural heritage of Indian, finds place coining specific epithet.

89. *Eulophia santapaui* Panigrahi & Kataki

Father H. Santapau, Indian botanist who worked for Systematic Botany and served also as Director, Bot.Surv. India finds place in specific name.

90. *Habenaria roxburghii* Nicolson

William Roxburgh, a pioneer in Indian Botany and also regarded 'Father of Indian Botany' for his contributions on Indian floral wealth especially during pre-independence period of India which regulated in his 'Flora Indica' (1824). He is honoured in specific epithet.

91. *Schoenorchis manilana* M. Kumar & Sequiera

Prof.K.S.Manilal (University of Calicut, Calicut, Kerala) who worked zealously on Rheede's Hortus Malabaricus and Flora of Silent Valley (Kerala) is denoted in specific name.

92. *Vanilla sanjappese* Rasingam, R.P.Pandey, J.J. Wood and S.K.Srivastava

Dr.M.Sanjappa, Former Director, Bot.Surv. India, Central National Herbarium, Calcutta, India, finds place in specific name.

RESULTS AND DISCUSSION:

Usefulness, dependability and importance of plant taxonomy in India is well realised recently. The Indian workers in this realm of research put the importance of taxonomy on ascending spirals in the light of recent biodiversity convention and conservation biology. Now, it is thought the first and foremost necessity for the development programmes. India is blessed with wide range of ecoclimatic conditions and physiography and one of the richest biodiversity center (Joseph, 1982). India is thought primary and also secondary center of origin of orchids. The family Orchidaceae is one of the largest family of flowering plants in the world. In India, 1300 orchid species pertain to 158 genera (Manilal and Kukmar, 1986; Chada, 1992; Karthikeyan *et al*., 1989). Phytoetymolgy helps define and order of man's relationships with the plant world. The literature resume indicates that this family has been investigated intensively in various domains of plant science. To date, there is hardly any attempt to study Indian orchids on etymological ground and hence formed the subject matter of this investigation.

(a) **Bases for coining names**: Assigning some name has been a necessity of life since the remote ancient eras. Taxonomists has to follow the same path. Plant names connote origin, history, morphology and such other aspects which are the parts of human and plant world relationships. For the present account, only specific names of orchids have been emphasized which are integral part of Indian biodiversity. As many as 92 orchid species belonging to 46 genera are disclosed for their origin. The various bases are categorised, for convenience, into three broad categories *viz*., (i) names based on plant features, (ii) names based on Indian features and (iii) patronyms (names commemorating Indian botanists). (i) The first category of names are established on total 27 bases such as: plant size, number of leaves, absence of leaves, foliose nature of plants, cylindric or terete leaves, leaf length, gramineous foliage, leaf arrangement, plicate leaves, fleshy leaves, longer floral segment, fimbriate floral structure, bilobed floral segments, flower colour, fragrance or odour, number of flowers, shape of lip, dense and type of inflorescence, flat flowering scape, size of bulb, ochreate and gemmate structures, robust or gigantic plant feature and root-system. (ii) The second category pertains to features of India such as: islands, states, cities or towns, India (as a nation), mountains, geographical regions, hill-stations and neighbouring country. (iii) The third category includes names in honour of botanists who worked on Indian biodiversity. It appeared that specific orchid names are not based on traditional or modern utilization basis.

Scientific latinised names may lead to some discomfort, but their advantages to the botanists are compelling. They are obviously lawful and methodological as has been made compulsory to follow the rules and principles of nomenclature enacted by ICN. Although so, botanists being mankind, cannot remain aloof from human instinct. They have their own faith, love and affection for his ambient surroundings and country. The bases of coining names clearly indicated man's wonderful capacity in discriminating between the objects or plants in his surroundings. Man is quite sensitive to the natural and social aspects of his life. He attempts to attribute names as soon as he discriminates these plants emphasizing their particular feature catching his eyesight or recalling his mind. We are also now well acknowledged that plant names have to be in Latin. The procedure of latinization is followed by the author of the plant species. This latin jacket many times renders the name difficult to conceive and does not reveal meaning and source of reference at ease. It is, therefore, now felt again to analyse them etymologically so that the learners or observers plant species can perceive in a correct perspective.

(b) **Phytography and nomenclature**: If we turn toward flora writing, we follow writing patterns: first to key out plant taxa, citations and synonyms, followed separately by phytographical description, phenology, distribution and sometimes critical notes. While analysing and verifying the bases of names of orchids, we came across certain things. First, the base on which the name coined is generally overlooked or neglected. Few authors include them in keys, while still few others employ the bases in phytogeographical description. Majority of authors do not pay attention or forget totally the bases of names or overlook their importance. In such circumstances, it is difficult to analyse and verify the bases of plant names. Secondly, sometimes taxonomists are hard put and it becomes necessary to transfer the name of a plant from one genus to another, generally because recent knowledge has indicated that the plant was assigned to a certain genus incorrectly. We are familiar with such nomenclatural changes biforce based on rules of nomenclature. This is a 'necessary taxonomic evil' as we need uniformity in conveying the scientific or botanical names internationally. This act renders changes in plant names many times in some cases. Act of passing one name to another is also responsible for causing 'nomenclatural chaos'. During this activity, the base or origin of a name is mostly forgotten. Thus during this taxonomic exercise, the original author's selected base, character or criterion on which the taxon was named is lost.

(c) **Etymology and teaching**: Moreover, "The teaching of taxonomy is often assigned to teachers who have neither the expertise not the interest in the subject" (Preface: Taxonomy of Angiosperms, Naik, 1984). This renders the subject of taxonomy more difficult, as it is not explained in a correct perspective in class, laboratory and field. At this backdrop, the present authors are inclined to state that some segment of syllabus on plant science should include 'Etymology of Plant Names'. This

effort will help redeem the situation. The literature on etymology pertaining to Indian plant species is rather scanty. The present authors has a made headway in this much overlooked study (c*f*. Patil, 2007, 2008; Patil and Patil, 2011; Patil and Patil, 2016; Pawar and Patil, 2012a,b). It is notable that plant names in Vedic and post-Vedic eras, the Sanskrit plant names were derived from sources of gross morphology of plants, their properties (Physical, medicinal or otherwise), their special features, etc. (Singh, 2008). The present account on orchidaceous taxa is on similar line in order to fill in this lacuna.

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