

Phalaenopsis taenialis

A Case of Split Personality/Text by Stig Dalström, Ngawang Gyeltshen and Thomas Höjjer/Photographs by Stig Dalström



A GREEN-FLOWERED *PHALAEENOPSIS* is something that many orchid breeders have sought for years, so when a photograph of one was submitted to the Orchid Identification Center (OIC 14965) at the Marie Selby Botanical Gardens in Sarasota, Florida, a few years ago, it created some interest (Dalström 2006). The origin of this *Phalaenopsis* could not be traced, but the owner of the plant, Allen Black, informed that when it first flowered, pictures were displayed on the World Wide Web with the hope that somebody would recognize it. Eventually, the plant was identified as *Phalaenopsis stobartiana* Rchb.f., but differing opinions were voiced, suggesting that it could not be that species because the flower has a spur at the base of the lip.

Dalström began the quest for correctly identifying this *Phalaenopsis* species by searching for clues in available literature and files. He immediately came across some contradictory and confusing information, which made him decide to investigate further. During this lengthy journey, some long-standing nomenclatural misconceptions were discovered. One of several problematic issues dealt with the identity of *Phalaenopsis taenialis* (Lindl.) Christenson & Pradhan versus *Phalaenopsis braceana* (Hook.f.) Christenson.

There has been considerable debate about the true identity of *Phal. braceana* (Seidenfaden 1980). This species was originally described by Hooker (1895) as *Doritis braceana*, based on a plant that flowered in the Botanical Garden of Calcutta, India.

The plant supposedly originated in Bhutan and was brought to James Gamble at Darjeeling in 1882. A drawing and a description were prepared and sent to Hooker by Mr. Brace (curator of the herbarium at the Royal Botanic Garden in Calcutta, 1882–1886). Both the description and the drawing suggest that it really is a *Phal. taenialis* with a deviating color of the flowers. Hooker describes the spur of the flower as equal in length to the lateral lobes of the lip, which is similar to *Phal. taenialis*. The rather stylized drawing of *Dor. braceana* looks like *Phal. taenialis* as well. The color is described as “*flavis costa rufescente*” (= yellow with a reddish centerline, or stripe) on the sepals and petals. Although the common color of *Phal. taenialis* is pinkish to pale rose, or white with a deeper colored lip, yellow flowers do occur under certain circumstances.

In King and Pantling (1898) we read, “Specimens with white flowers are not uncommon; but, after fertilization has been effected, these change to yellow.” In an article in *The Orchid Review* by Phillip Cribb (2001) entitled “Three small-flowered *Phalaenopsis*” (*Phal. braceana*, *Phal. taenialis* and *Phal. wilsonii*), and later in *Orchid Digest* (2002), we read and see how the pink flowers of *Phal. taenialis* (from Bhutan) turn orange as they begin to fade and die. Ganesh Mani Pradhan (1972) describes *Phal. taenialis* as coming from elevations of 5,000–6,000 feet (1,525–1,830 m), and is best suited for a cool greenhouse, or the cool end of a greenhouse kept at intermediate temperatures. Based on this

- [1] A sample sent to the Orchid Identification Center at the Marie Selby Botanical Gardens, Sarasota, Florida (#14965) that was identified as *Phalaenopsis honghenensis*, a plant of unknown origin. Grower: Allen Black.
- [2] A plant purchased from Hoosier Orchids as “*Phalaenopsis braceana*” (OIC 15886); probably the same species as the Forrest 26706 specimen from Yunnan, China.

information, it seems reasonable to believe that when a “cooler” orchid is brought to the summer-hot Calcutta, it would be under considerable stress, and the flowers may respond by turning prematurely yellow, as before dying. Dalström, therefore, concluded at the time that the normally pink flowers of *Phal. taenialis* can turn yellow due to stress and disturbances, such as pollination, heat, possibly increased light intensity and aging, which further supports the synonymy of *Phal. braceana* with *Phal. taenialis*. Cribb (2001) also writes that *Phal. braceana*, regarded as a “rarer beast,” was seen only once in the wild by him, in southwest Yunnan, China, and the photograph of this species shows a plant with bronzy reddish-brown flowers. Another photograph by Cribb (but not credited) of the same inflorescence occurs in *Native Orchids of China in Color*, page 272 (Chen et al. 1999), as *Kingidium braceanum*. Yet another sample of the same inflorescence (mirror reversed) can be seen

in *Die Orchidee* 52(2): 225, except that, by mistake, the text refers to it as coming from a “standort” (place) in Bhutan. This rather innocent mistake (confirmed by Cribb, pers. comm.) does add certain confusion to this case because the original plant of this species (as *Dor. braceana*) was assumed to come from Bhutan.

In *The Orchids of Bhutan*, Pearce and Cribb (2002) state that they have only seen plants from Yunnan of *Phal. braceana*. They also include a photograph of *Phal. taenialis* (the label is switched with the photograph of *Phal. mannii* Rchb.f., on plate 30) with an inflorescence carrying five pink and one orange-yellow flower.

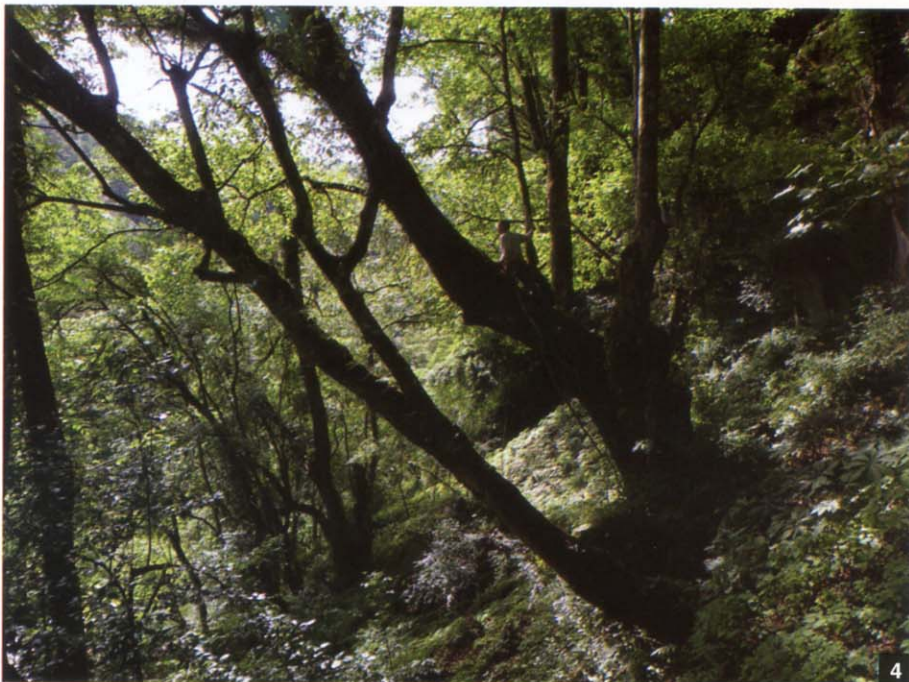
Recently, the authors of this paper have had the great fortune to be able to study many natural populations of *Phal. taenialis* in Bhutan during the orchid research and conservation project at the National Biodiversity Center in Serbithang. Our observations demonstrate clearly that Dalström’s initial conclusions are correct. Flowers of this attractive miniature *Phalaenopsis* species are generally uniformly pale rose-pink with a deeper purple lip in a fresh state. After pollination, or some kind of stress, maybe due to damage or drought, the flowers turn pale orange (or “rusty yellow”) quickly, and resemble exactly the original illustration of Hooker’s “*Doritis braceana*.” This process is common among plants and can be called “post-pollination syndrome.” When the flower has been successfully pollinated (in the case of *Phal. taenialis*), the plant changes the color of the flower as if telling additional insects (pollinators) to stay away. Apparently, the pale rusty orange color does not have the same attraction power as the pink-purple combination. Another example of this phenomenon can be seen in the unrelated South American *Odontoglossum astrarthum* Linden & Rchb.f., and its allies. These species have a bright white lip, often with purple markings, which create a stark contrast to the straw-yellow sepals and petals. After pollination, the lip quickly turns yellow and resembles the sepals and petals.

Therefore, there remains no doubt that the name “*Phalaenopsis braceana*” represents a synonym of *Phal. taenialis* and should not be used in horticulture.

NOMENCLATORIAL DIFFICULTIES The problem is that the name “*Phalaenopsis braceana*” is well established in some literature and among orchid growers, but unfortunately representing one or several different species. How did this happen? The explanation for this confusion is complicated but an attempt is made to lay it out here.



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Pearce and Cribb appear to base the identification of *Phal. braceana* in *The Orchids of Bhutan* on Seidenfaden’s discussion in *Opera Botanica* (1988), where he transfers *Dor. braceana* to *Kingidium braceanum*. Seidenfaden (1988) writes that a Forrest 26706 collection from Yunnan (cited as *Phal. wilsonii* by Sweet 1980), was located among specimens of *Phal. taenialis* at the Royal Botanic Gardens, Kew, and identified as a new species by Tang and Wang during their work in transferring *Kingiella decumbens* (Griff.) Rolfe, and *K. taenialis* to *Biermannia* King & Pantl. Tang and Wang called it “*Biermannia naviculare*,” but did not publish the epithet.

[3] *Phalaenopsis taenialis* habitat in western Bhutan at an elevation of 4,800–7,200 feet (1,600–2,200 m).

[4] *Phalaenopsis taenialis* habitat in extreme eastern Bhutan at an elevation of 3,000–4,800 feet (1,000–1,600 m).



- [5] *Phalaenopsis taenialis* displaying the post-pollination color change.
- [6] A single orange flower of *Phal. taenialis* can easily fool botanists to see a different "species," hence the description of *Phal. braceana*.
- [7] Thomas Höijer examines a specimen plant of *Phal. taenialis*.

Seidenfaden (1988) agrees with Tang and Wang that the Forrest specimen represents a species, which is different from *Phal. taenialis*, but he disagrees with Sweet's determination (1969, 1980) of it as *Phal. wilsonii*, and incorrectly identifies it as the "lost" *Dor. braceana*, which he then transfers to *Kingidium braceanum* (the transfer to *Kingidium* is apparently based on the presence of a spur of the flower and the number of pollinia). A drawing of the Forrest specimen at Kew accompanies the article and it appears similar to, but not identical with, the green-colored OIC 14965 specimen (= *Phal. cf. honghenensis* Liu). Later examination by Dalström of a duplicate of the Forrest specimen (in Vienna) confirms this. The Forrest specimen from Yunnan appears identical with yet another species that is sold in the orchid market as "*Phalaenopsis braceana*" (OIC 15886).

Based on the information listed here, the authors disagree with Seidenfaden and conclude, without a doubt, that the true *Phal. braceana* is a synonym of *Phal. taenialis*, in agreement with King and Pantling (1898), Rolfe (1917) and Gruss and Röhlke (1997), and that the often cultivated Chinese species (from Yunnan) represent one or several closely related but different species altogether.

Some confusion remains, however, and a deeper study of the enigmatic green-flowered *Phalaenopsis honghenensis* F.Y.Liu. (Liu 1991; Dalström 2006), and the slightly different Forrest 26706 specimen from Yunnan, is being prepared in collaboration with Paul Ormerod.

CULTIVATION Growing *Phal. taenialis* should be rather easy if one can find an established plant. The plants are best grown on a piece of driftwood or cork bark, and care should be taken not to break the brittle tapewormlike roots. This exquisite species grows in nature on a variety of broad-leaved hosts, such as oaks and rhododendrons, etc., with smooth or rough bark, but generally under rather shady conditions. It receives a lot of water during the summer monsoon (late May–August), during which time plants grow and produce thin textured plain-green leaves. Later in the autumn, most leaves drop and the plant needs a drier rest until it flowers in May the following year. *Phalaenopsis taenialis* should do well under warm and humid conditions during the summer, but kept rather cool and dry (for a phalaenopsis) during the winter or as Pradhan suggested, in the cool end of an intermediate house.

Acknowledgments

The authors sincerely thank Dr. Tashi Dorji and the staff at the National Biodiversity Center in Ser-

bithang, Bhutan, for a most pleasant and productive collaboration. Dalström also thanks the Ministry of Agriculture, Bhutan, for great support; Dasho Ugyen Tshewang, the Sarasota Orchid Society, the Central Florida Orchid Society, the Friends of Orchid Research Fund, the Community Foundation of Sarasota County, and everybody else who, one way or another, make the exciting "Dragon Orchid Research" program possible.

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- [8] The flat and slightly warty roots of *Phal. taenialis*, which can stretch for several feet in each direction, easily identifies this species in Bhutan.
- [9] National Biodiversity Center botanist Ngawang Gyeltshen begins preparing a *Phal. taenialis* herbarium specimen.

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