

EXISTENCE OF *Stelechocarpus burahol* (Bl.) Hook.F. & Th. IN WILDERNESS ZONE, BANDE ALIT RESORT, MERU BETIRI NATIONAL PARK

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ABSTRACT

Many researchers (Botanists, Systematists, Taxonomists, etc.), especially who concern in plant conservation are afraid about the existence of *Stelechocarpus burahol* (Bl.) Hook.f. & Th., family Annonaceae. Because, the plant is becoming rare and facing extinction. Information about the species is so limited and difficult to get. Fortunately, based on the preliminary study of the population shows that it can be found in Wilderness Zone, Bande Alit Resort, Meru Betiri National Park. The mapping of the species disperse in this location was also done.

Key words: *Stelechocarpus burahol*, Annonaceae, Meru Betiri National Park

INTRODUCTION

Stelechocarpus burahol (Bl.) Hook. f. & Th. is a species in genus *Stelechocarpus*, family Annonaceae that grouped in primitive Angiosperm. The other genus of the Annonaceae such as genus *Annona*, *Cananga*, *Monodora*, *Rollinia*, etc. *Stelechocarpus burahol* (Bl.) Hook. f. & Th. commonly, it is called Kepel (Javanese) either in Jogjakarta or Central-Java, also East-Java, because of the fruit size is as big as a fist. The species is very interesting plant, because of the red-young leaves, the position of the flowers and fruits, the color of the flowers, etc.

Nowadays, many people, especially youth such as students, pupils in elementary and secondary school do not know about the species, moreover cannot describe or mention the character of it, because they have never seen before. The plant is getting rare and difficult to find and show, beside it becoming extinction. The species is one of the plant on the List of Endangered plants (Mogea, 2001; Tim Penulis Penebar Swadaya, 1994; Sastrapradja In Fachrurozi, 1980). Cultivation of the species seems to be limited, except in Jogjakarta it is planted as a shade and ornamental tree in house yards. It was done in framework of replanting of rare plants and a million trees planting programs presently. The propagation used seed taken from mature fruits, because other propagation methods tried were no success (Sunarto, 1992; Sunarto, 1987).

The Wilderness Zone is a part of Meru Betiri National Park as a zone that visitors are allowed limited entry and only for certain purpose, especially for research. In this zone is not permitted to plant, so the vegetation or population of plant is in natural growth. Based on the character of this

zone, it is the most appropriate place for knowing the existence of *Stelechocarpus burahol* (Bl.) Hook. f. & Th.

MATERIALS AND METHODS

The species examined in this study is only one species mentioned as *Stelechocarpus burahol* (Bl.) Hook. f. & Th. that found in Wilderness Zone, Bande Alit Resort, Meru Betiri National Park, East-Java. Morphological data got during the fieldwork was gathered. Then, by using GPS (Global Positioning System) to know the position of the species found in the research location was also done, included a map of the observation plots. The fieldwork was conducted during May–June 2003.

RESULTS

Stelechocarpus burahol (Bl.) Hook. f. & Th. actually can be found in Wilderness Zone, Bande Alit Resort, Meru Betiri National Park in limited numbers of population. The species found is in 75 m up to 265 m above sea level and surrounded by plantlets and young trees. Based on the previous information, the species must be in 150 m up to 300 m above sea level (Backer & Bakhuizen, 1963; Tim Penulis Penebar Swadaya, 1994; Heyne, 1987; Tahan Uji In Mogea, 2001).

Description

Woody tree, cylindrical trunk with numerous of characteristically arranged lateral branches, monopodium, ark grey-brown color; the leaves are simple, thin leathery, shining, elliptic-oblong to ovate-lanceolate, dark green, midrib raised on upper and lower surfaces. Flowers

fasciated on tubercles on the trunk and older branch, unisexual; male flowers ramiflorous, female flowers on the lower part of the trunk, closed to the ground, cauliflorous, in large numbers in cluster. Fruit about rounded shape with a longitudinal groove, brownish, 5–6.3 cm in diameter, stalk 5.4 up to 6.1 cm long, cylindrical, left on the trunk. Seeds elliptic, in a cross position with the length of the fruit, 3–5 seeds per fruit, about 3.5 cm long and 1.5 cm wide.

Population in Location

During in the fieldwork, the species was found commonly in a group with different size of the member of the group. Every group comprises one or two trees that several times got the flowers or fruits with several young trees in surrounding rather than spreading out from the old one. Unfortunately, the group is in limited member, it is about 4–5 plantlets that have 0.36 up to 38.2 cm, in diameter of trunk and 2–3 young trees with 8 up to 10 cm in diameter of trunk, but sometimes bigger. These groups found are located near the river, its may be any related to its disperse. A special focused in this condition is needed to explain more accurate information.

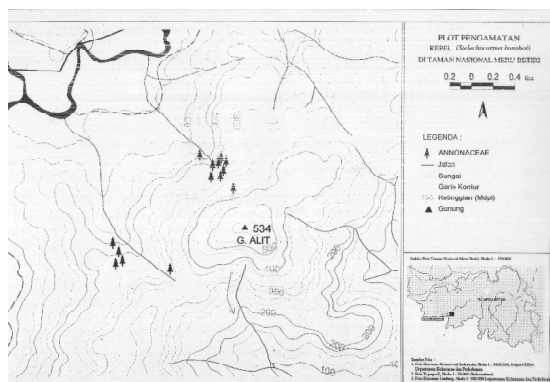


Figure 1.

DISCUSSIONS

Efforts of Ex-situ Conservation

Based on its scarcity, *Stelechocarpus burahol* (Bl.) Hook. f. & Th. is in LR (Low Risk) category and cd (Conservation dependent) subcategory. It is meant that the species is difficult to find, because it is getting rare. If no conservation action conducted during next five years, consequently the species will through up to the next step category (Mogea, 2001). Now, the species can be found in Bogor Botanical Garden (Puji Astuti, et al., 2001) and Purwodadi Botanical Garden (Soewilo, et al., 1999). In Wilderness Zone, Bande Alit Resort, Meru Betiri National



Figure 2. The Position of the Fruits on the Trunk



Figure 3. Feature of young *Stelechocarpus burahol* (Bl.) Hook. f. & Th.

Park was found several trees with young tree surrounding as mentioned above. It expresses that any hope hanging for the future of this species. But, it needs a special and better maintains to start establishing the species in its habitat. This effort seems to be harder and harder and was started to propagate by using seeds took from mature fruits (Sunarto, 1987; Sunarto, 1992). This way was done in D.I. Jogjakarta, in the framework of replanting of rare plants called a million

plants replanting once it also used as shade in house yards. This species is the Identity Flora of the Province of D.I. Jogjakarta. This program needs a long time in preparation and to know the result. Vegetative propagation as well as cutting and layering were tried, but no success (Sunarto, 1987; Sunarto, 1992). It necessary to conduct other research related to its propagation and ovules or seeds growth. In recent time the ovules of *Stelechocarpus burahol* (Bl.) Hook. f. & Th. growth knew until the integument form process (Imachi et al., 1995).

Flowering Time

Based on the previous literatures, the flowers of *Stelechocarpus burahol* (Bl.) Hook. f. & Th. rise in September up to October periodically (Sunarto, 1992; Tahan Uji *In Moge*, et al., 2001), March up to October (Backer & Bakhuizen, 1963; Fachrurozi, 1980), but for this study in Wilderness Zone, Bande Alit Resort, Meru Betiri National Park the flowers can be found in June. Of course, not all tree got flowers or fruits at the time, but it found in varies of stages, such as in certain tree, the young flowers were in bud stage and in other tree got the full open flowers. In the same time, the fruits also can be found in certain tree in other population separately. In other words, the flowers of the species were found in different size and stage of growth. It seems to be confusing, because the fact is so different with the previous information or, it means any other reasons.

Uses

Stelechocarpus burahol (Bl.) Hook. f. & Th. fruits are valuable in serving medicinal and cosmetic sources (Tahan Uji *In Moge*, 2001). Ancient Javanese believed that eating the fresh fruit would cause body secretions to take on a perfume scent or to ward off unpleasant odor of the body. The fruits also gives the fragrance of viooltjes in urine (Heyne, 1987; Nasution & Sastrapradja, 1975), sweat (Nasution & Sastrapradja, 1975; Mardisiswojo & Rajakmangunsudarsono *In Fachrurozi*, 1980), and breath (Sunarto, 1992; Mardisiswojo & Rajakmangunsudarsono *In Fachrurozi*, 1980). In a long time ago, most of harems of the Sultan of Jogjakarta (Sunarto, 1992; Heyne, 1987) and Solo (Heyne, 1987) applied the fruit as a traditional deodorant. It was done due to serve her/their husband in hide-competition to get more attention than the other rival. In this case, the fruit was only permitted to eat for the princes and other harems, no eating for ordinary people. Because of it value, in that time, the plant was only allowed to plant in castle or pleasure park and palace yard (Heyne, 1987).

Moreover the fruits was also used to prevent kidney inflammation and pregnancy or as a family planning agent (Sunarto, 1992; Mardisiswojo & Rajakmangunsudarsono *In Fachrurozi*, 1980), but no complete information of these medically. Meanwhile, *Stelechocarpus burahol* (Bl.) Hook. f. & Th. is as source of wood for light construction such as furniture, garden tools and sport equipment (Nasution & Sastrapradja, 1975), an article of household (Tahan Uji *Moge*, 2001) to build a frame of house, firewood, etc. The straight trunk, after immersion in water for several months is used in house building and is said to last for more 50 years (Sunarto, 1992), is reported to make flat board and kaso-kaso (Forest Research Institute, Bogor *In Nasution & Sastrapradja*, 1975) and will be not attacked by termites everlasting for 15 years without touching rainy (Nasution & Sastrapradja, 1975). In other sides, actually, the plant is a beautiful ornamental plant. When the young leaves arise, its of a flush changing from light pink into a burgundy red color before turning a brilliant green (Sunarto, 1992), and also the rising flowers with yellowish color and brownish fruits on the trunk are a special attractive view (Sunarto, 1987). This is the uniqueness of the *Stelechocarpus burahol* (Bl.) Hook. f. & Th. (see also Figure 2. and Figure 3.)

Genus *Stelechocarpus*

This genus comprises several species that are still lacking in information. Reported that there are five species in Siam and Malesia or one species in Malaya (Sinclair, 1955; Kochummen, 1972) with only one species described or 3 to 4 in Malay Peninsula with two species described (Ridley, 1922). Meanwhile, there are two three species identified in Indonesia, one of them is *Stelechocarpus burahol* (Bl.) Hook. f. & Th. The species is a native plant of Java (Ridley, 1922), but other people said that the species originates from Java and Malayan Peninsula.

Based on herbaria observation served in Herbarium Bogoriense there are many specimen herbaria collected from Sumatra, Kalimantan and through out Java such as Batavia, West of Jasinga, Ujung Kulon, Sukabumi, Bogor, G. Cibodas, Pelabuhan Ratu, etc. represent of West-Java. Then, Candioto, Semanding-Jepara, Karangasem-Semarang, Pekalongan, Nusa Kambangan, Cilacap, Blora, Rembang, Midangan-Pringombo- Singomerto-Banjarnegara- Banyumas, Magelang, etc. represent of Center of Java but only three specimens taken from East-Java, i.e. one specimen from Malang and two specimens from Pasuruan. It means that no specimen taken from Meru Betiri National Park. The other two herbaria identified as *Stelechocarpus cauliflorus* (Scheff.) R.E. Fries and *Stelechocarpus schefferii* Boerl. were not taken from Java.

Stelechocarpus burahol (Bl.) Hook. f. & Th. is still exist in Wilderness Zone, Bande Alit Resort, Meru Betiri National Park in limited number. It probably will be there forever, when there is an effort to conserve not only ex-situ conservation but also to maintain better in its habitat. Besides, doing other efforts and research about the appropriate propagation for it. Because the plant is very useful as medicinal and cosmetic sources. It means that the species has a good prospect for the future.

ACKNOWLEDGEMENTS

The author would like to acknowledge Director of Herbarium Bogoriense, Research and Development Center for Biology, LIPI for facilities and chance to observe the genus *Stelechocarpus* in last 1998, and also a special thank to Dr. J.P. Mogeja for support and kindness to assist during the observation.

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