Short Communication

Occurrence and Propagation of *Bruguiera parviflora* in the Sundarbans Mangrove Forest of Bangladesh

Mohammad Osman Gani
Forest Department, Mahila College Road, Boyra
Khulna 9000, Bangladesh

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The Sundarbans mangrove forest is well known for its rich biodiversity and probably has the maximum flora and fauna as compared to other mangrove forests of the world. Prain (1903) reported 334 plant species in the Sundarbans and surrounding areas. It is a matter of concern that there is a loss of biodiversity in the Sundarbans mangrove forest. Sattar and Faizuddin (1998) reported that one species of *Bruguiera*, that is *B. parviflora*, has become extinct, and many other plant species such as *Lumnitzera racemosa*, *Xylocarpus granatum*, *Avicennia marina*, *Rhizophora mucronata*, *R. apiculata*, *Kandelia candel*, *Excoecaria indica*, *Cynometra ramiflora* and *Amoora cuculata* are already threatened. Chaudhuri and Naithani (1985) did not mention the presence of *B. parviflora* in the Indian part of Sundarbans but noted its presence in the Andamans mangrove forests. It used to be found associated with other mangrove species in the Sundarbans on the bank of rivers and creeks (Naskar and Guha Bakshi 1987). The timber of *B. parviflora* is used as fishing pole and firewood. It is also a fodder plant for deer and other herbivorous animals.

There are three species of the genus *Bruguiera* in the Sundarbans mangrove forest of Bangladesh. These are *Bruguiera sexangula* (locally known as bakul kankra), *Bruguiera gymnorrhiza* (locally known as kankra) and *Bruguiera parviflora* (locally known as bhat kathi). Among these, *B. sexangula* and *B. gymnorrhiza* are found in abundance all over the Sundarbans mangrove forest, whereas *B. parviflora* is at the verge of extinction. In the year 2000, two *B. parviflora* trees were detected near Katka Station Headquarters under Sharonkhola Range of Sundarbans East Forest Division. An attempt was made to propagate this species in the Sundarbans by raising seedlings from the fruits/seeds (propagules) collected from these trees.

Flowering and fruiting of *B. parviflora* occurred during November-February. The propagules were collected from the trees during March-June using net under the canopy. These were planted in polybags immediately after collection. In all 97 propagules were collected. The average length of the propagules was 14 cm. The propagules were dibbled in polybags (32 cm x 22 cm) filled with equal amount of sand and humus of decomposed mangrove leaves and these were kept at the compound of Katka Rest House. Germination occurred, on an average, 25 days after sowing. The germination percentage was 88.65. Fig. 1 shows a three months old seedling of *B. parviflora* in polybag. The propagules and seedlings were irrigated regularly with river water. The deer browsed 13 seedlings through a hole in the fence but lateral shoots developed from the browsed seedlings, which were also planted in the forests during the last part of the planting programme. The growth data of the seedlings are shown in Table 1.

The seedlings were planted in August-November in the forest on the bank of water channels in hard mud where inundation water

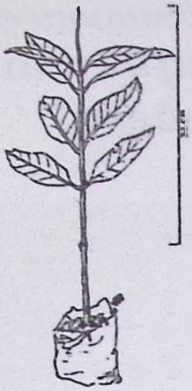

Figure 1. Three months old seedling of *Bruguiera parviflora*.

was accessible. Aksornkoae *et al.* (1992) reported that the mud beneath *B. parviflora* trees is often harder due to a higher ground level. The seedlings were planted at Katka, Karamjal, Kalagachia, Notabeki, Nilkamal (Hiron point), Mandarbaria and Patkosta. The planted seedlings were fenced with net for protection against deer browsing..

Table 1. Germination and growth of seedlings of *B. parviflora* in the nursery.

Planting period	Average length of propagules (cm)	Average time of sprouting (days)	Average length of seedlings after sprouting (cm)	Average height growth in 3 months (cm)
March	14	26	6.35	28
April	13	22	2.65	28
May	15	26	3.81	38
June	14	30	2.60	35

All the seedlings survived except one, and satisfactory growth was noticed in four months period (Table 2). The seedlings planted under partially shaded condition performed better in comparison to the seedlings planted under heavy shaded condition. Crabs damaged seedlings by cutting their delicate tips.

There is a trend of species extinction in the Sundarbans mangrove forest due to biotic and abiotic reasons. In order to save the species from extinction and to maintain rich biodiversity of the Sundarbans mangrove forest, there is a need to identify the endangered species for multiplication through artificial planting.

Table 2. Growth of seedlings of *B. parviflora* after planting at different locations of the Sundarbans.

Location	Average height of seedlings at planting (cm)	Average height growth in 1st four months (cm)	Remarks
Katka (21)*	28.0	43.18	1 seedling died
Karamjal (10)*	28.0	43.00	Tips of 3 seedlings cut by crabs
Kalagachia (10)*	34.0	40.00	Tips of 3 seedlings cut by crabs
Notabeki (10)*	35.0	41.26	-
Nilkamal (10)*	35.0	42.00	-
Mandarbaria (15)*	28.0	Data not recorded	Deer browsed seedlings
Patkosta (10)*	34.0	43.10	-

* Number of planted seedlings.

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