POLYEMBRYONY IN *DIPTEROCARPUS RETUSUS*

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Dipterocarpus retusus (Syn. *D. macrocarpus*) belongs to the family Dipterocarpaceae. In India, it is found in tropical wet evergreen dipterocarp forest of upper Assam, south-east Arunachal Pradesh and northern Nagaland (Champion & Seth 1968). It also occurs in Myanmar, Thailand, Vietnam, Peninsular Malaysia, Jawa, Bali, Lombok and Sumbwa.

Polyembryony is a phenomenon of occurrence of more than one embryo in a seed and has been reported in several forest tree species. In the family Dipterocarpaceae, it is reported in *Shorea robusta* (Ghosh & Sashi 1957), *S. ovalis, S. agami, Anisoptera curtisii, D. baudii, D. cornutus, D. costulatus, Vatica pallida* and in several other species of Asian dipterocarps (Kaur *et al.* 1978) and in *Vateria indica* (Abdul Kader *et al.* 2000). Polyembryony in *D. retusus* is reported here for the first time .

Seeds were collected from different forest areas in Assam and Arunachal Pradesh. Of the 5000 seeds collected, only 2 exhibited polyembryony, which is characterised by the emergence of two radicles. Polyembryonic seeds were sown in 17.5 × 22.5 cm polybags filled with potting media (soil:sand:cow dung in 2:1:1 ratio) to observe the growth of polyembryonic *vis-à-vis* normal seedlings for about 45 days. Of the two polyembryonic seeds, one developed two roots of 14.4 and 4.3 cm length with a lone distorted shoot having 3.0 cm length which died afterwards and the second seed produced twin seedlings and had two well developed independent tap-roots of 15.0 and 13.0 cm length and two shoots of 17.0 and 14.0 cm length respectively (Figure 1).

The production of multiple seedlings (twin seedlings) from a seed is an indication of polyembryony, which has not been reported in *D. retusus* so far. The percentage of seeds with multiple seedlings is very low (0.04%) in *D. retusus*, whereas *S. macroptera, S. resinosa, Hopea odorata* and *H. subalata* recorded 30–70, 98, 90 and 21% respectively (Kaur *et al.* 1978). In *D. retusus*, a maximum of two seedlings (twin seedlings) per seed has been recorded. Foxworthy (1932) also reported a maximum of two seedlings per seed in other members of Dipterocarpaceae, namely *S. macrophylla, S. ovalis, S. parvifolia, H. mengarawan* and *D. cortusus*. However, varying numbers of seedlings per seed, i.e. 3, 4, 5, 9 and 18 has been recorded in *H. subalata, S. agami, S. sericea, S. macroptera* and *S. resinosa* respectively (Kaur *et al.* 1978).

There are several categories and causes of polyembryonic condition in different plant species (Bhojwani & Bhatnagar 1992). It has been reported that polyembryony in Dipterocarpaceae is due to apomixis (Kaur *et al.* 1978). However, multiple seedlings from single seed have different genotypes, suggesting that multiple seedlings may not necessarily involve apomixis as it has been reported in *H. odorata* (Wickneswari & Norwati 1994).

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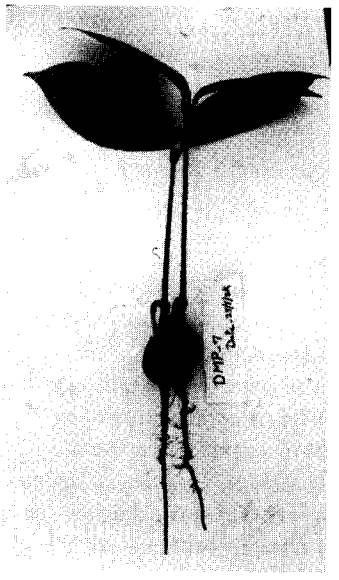

Figure 1 Twin seedlings of *Dipterocarpus retusus*

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