

Agronomic features and yield components of sago palms grown in the islands in Southeast Asia and Melanesia

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Abstract

Morphological characteristics indicating agronomic features and yield components (trunk length, trunk diameter, thickness of bark, pith density, dry-matter percentage of pith and starch concentration in pith) of sago palms (*Metroxylon sagu* Rottbøll) were compared between the 27 populations grown in the islands in Southeast Asia (West Sumatra, South Sumatra, West Java, Southeast Sulawesi, Ternate, Halmahera and Seram in Indonesia) and the 20 populations grown in Melanesia (West Papua in Indonesia, East Sepik and New Ireland island in Papua New Guinea). The average starch yield calculated based on the yield components was 310 kg plant⁻¹ and 244 kg plant⁻¹ in the islands in Southeast and Melanesia, respectively. The variation of starch yield in Melanesia (CV: about 80%) was larger than that in the islands in Southeast Asia (CV: about 60%). The difference in starch yield in the islands in Southeast Asia was mainly attributed to the trunk diameter breast height and the dry-matter percentage of pith. In contrast, the differences in trunk length and dry-matter percentage of pith mainly accounted for the difference in starch yield in Melanesia. The sago palms in the islands in Southeast Asia had a comparatively thick and short trunk and those in Melanesia had a comparatively thinner and longer trunk. However, the average pith dry-matter yield was almost same level as 400 kg plant⁻¹ in both the islands in Southeast Asia and Melanesia. The difference in starch yield between the two areas was attributed to the difference in starch concentration in pith, 77% and 58% in the islands in Southeast Asia and Melanesia, respectively.

Keywords: Indonesia, *Metroxylon sagu* Rottb., morphological characteristics, Papua New Guinea, starch, yield components

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