

THE BIOMASS PARTITIONING ALLOCATION IN VEGETATIVE PART OF *CRYPTOCORYNE CORDATA* VAR. *ZONATA* (DE WIT) JACOBSEN FROM VARIOUS LOCALITIES IN SARAWAK, MALAYSIA

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ABSTRACT

The study of biomass allocation partitioning in *Cryptocoryne cordata* var. *zonata* (de Wit) Jacobsen (Water trumpet) has been carried out in 16 localities in Sarawak. The objective of this study was to investigate the biomass allocation of vegetative part in *C. cordata* var. *zonata*, as part of its ecological strategy for adaptation. The biomass partitioning allocations were analyzed based on Peterson and Flint (1983) calculation. The ecology and habitat of the 16 localities of *C. cordata* var. *zonata* were recorded. The results of the analysis showed that there were significance difference ($p < 0.05$) using one way ANOVA in vegetative parts ratios that content LWR (leaf weight ratio), PRW (petiole weight ratio) and RWR (root weight ratio) for the *C. cordata* var. *zonata* of Niah National Park where the river are located in the virgin forest. However, no significance difference in *C. cordata* var. *zonata* vegetative ratios grown in Balui Waterfall, Sg. Engkeramut, Sg. Klauh, and Sg. Ranan. The results obtained from this study showed that, biomass partitioning in their vegetative parts were variable due to the habitat variations as part of its ecological adaptation strategy.

Keywords: *Cryptocoryne cordata* var. *zonata*, biomass allocation partitioning and ecological strategy

INTRODUCTION

Cryptocoryne cordata Griffith var. *zonata* (de Wit) Jacobsen or Water trumpet plant or locally known as Kalakatai is classified under the family Araceae. It is one of the *Cryptocoryne* species that is endemic to the Borneo (Jacobsen, 1985). *C. cordata* var. *zonata* is a submerge aquatic plant characterized by having a green to urplish bullate lamina, purplish spots at the spadix, purple zone at upper part of kettle, more or less purplish appendage at inflorescence limb surface and a widel collar zone (Jacobsen, 2002). These characteristics distinguished *C. cordata* var. *zonata* from the other species and the other *C. cordata* varieties. *C. cordata* var. *zonata* have been recorded in Sg Badas, Brunei in 1979, near to Katingan, Central Kalimantan (Sasaki, 2003), Sg. Engkeramut, Sri Aman

(Jacobsen, 1982), Matang, Kuching (Jacobsen, 1985) and Sg. Siul, Kuching (Ridley, 1905) in Sarawak. This species was found in small streams with slow moving water and small pool in peat swamp forest (Schulzse, 1971; Jacobsen, 1982; Bastmeijer, 2002). However, *C. cordata* var. *zonata* is not suitable for aquarium plant for a long term culturing as others *Cryptocoryne* species (Bastmeijer, 2002). However, some of *Cryptocoryne* species are useful for environmental changes indicator because of its sensitivity to the habitat destructions (Mansor & Masnadi, 1994).

Biomass allocation partitioning in plant is defined as a ratio of dry weight of a particular part to a total plant dry weight as an ecological strategy of the vegetative part to survive in different given environment