

Growth promoting effects of endophytic fungus *Phlebia GanoEF3* on oil palm (*Elaeis guineensis*) seedlings

ABSTRACT

Isolation from trunk and root tissues of oil palms by Malaysian Palm Oil Board (MPOB) has found several promising fungi, mainly *Hendersonia GanoEF*, *Amphinema GanoEF2*, and *Phlebia GanoEF3*. The objective of this study was to investigate the potential of *Phlebia GanoEF3* to serve as a biological fertilizer and eventually promote the oil palm seedlings growth. Two types of organic fertilizers; Empty Fruit Bunches (EFB) powder and Real Strong Bioorganic Fertilizer (RSBF) were incorporated into the formulation to develop biofertilizers containing endophytic fungus *Phlebia GanoEF3*. Five ratios of fertilizer to fungus (10: 50, 20: 40, 30: 30, 40: 20 and 50: 10) for each formulation were prepared and in vitro study and the shelf life of viable cell of *Phlebia GanoEF3* in the formulations during storage were determined. After eight months, the ratio of 30 g of EFB powder to 30 g of *Phlebia GanoEF3* (30: 30 g) and 10 g of RSBF to 50 g of *Phlebia GanoEF3* (10: 50 g) were found to be the suitable ratios for the in vitro study and application in the field. Investigation of endophytic fungus *Phlebia GanoEF3* on the growth of oil palm seedlings in nursery trial showed that seedlings treated with EFB and RSBF organic containing *Phlebia GanoEF3* increased the growth of the seedlings. All growth parameters measured showed significant difference in the mean values between treated and untreated seedlings. These findings showed that *Phlebia GanoEF3* is suitable to be used as biofertilizer for oil palm seedlings.

Keyword: Biofertilizer; Bioorganic *phlebia GanoEF3*; Endophytic fungus; Growth promoter