

Growth performance of *Jatropha curcas* cultivated on local abandoned bauxite mine soil

ABSTRACT

Lack of regulation in bauxite mining has caused land contamination in Malaysia. Land rehabilitation requires plants with excellent adaptability to adverse conditions. Inedible, economical viable crops with environmental co-benefits, like phytoremediation, are preferred. In this study, *Jatropha curcas* was evaluated for its growth performance in bauxite mine soil. Topsoil and exposed subsoil were sampled from a bauxite mine at Bukit Goh, Kuantan and used for growing *J. curcas* for 90 days under greenhouse conditions. The soil physicochemical properties, plant growth parameters (increase in number of leaves, plant height, and basal diameter), and oil yield were determined. The findings showed that the mine soils had lower nutrient status than unmined soil as reflected by the total C, N, P, and K values. Al, Fe, and Pb were relatively high in topsoil and subsoil. Plants grown in both mine soils recorded significantly lower increases in plant height and basal diameter but higher increases in number of leaves than that of nursery soil. Oil yield was significantly different between the plants grown in subsoil (46.54%) and topsoil (41.65%). The study demonstrated that *J. curcas* has the potential to be cultivated as an alternative crop in bauxite mine soil.

Keyword: *Jatropha curcas*; Growth performance; Land rehabilitation; Revegetation; Bauxite mine soil; *Jatropha* oil