



EVALUATION OF POTTING MIXTURES AND PROVENANCE ON EMERGENCE AND SEEDLING GROWTH OF GUM ARABIC (*Senegalia senegal* [L.] Britton)

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ABSTRACT

The experiment was conducted at the Rubber Research Institute of Nigeria, Gum Arabic nursery Sub-station Gashua, Yobe (12° 46' N longitude 11° 00' E and altitude 360m above sea level) to evaluate the effect of potting mixtures and provenance on the emergence and seedling growth performance of gum arabic (*Senegalia senegal*) in 2017 and 2018. The treatments consisted of eight (8) different potting mixtures of top soil, river sand and cowdung in the ratios (2:0:1, 2:0:3, 2:1:1, 2:1:3, 2:2:1, 2:2:3, 2:3:1, 2:3:3) and two (2) provenance (Yusufari and Gujba). The experiments were laid out in Randomized Complete Design in three (3) replications. Potting mixture showed no significant difference in days to emergence of *S. senegal* while seeds of Yusufari origin significantly influenced early days to emergence in both years of the study. At three (3) months after sowing (3 MAS) with ratios 2:1:1, 2:3:1 and 2:2:3 though statistically similar, significantly gave superior seedlings height in 2017 and 2018 experimentation with Gujba provenance producing taller seedlings. At 3MAS with ratio 2:1:1, 2:0:1, 2:1:3 and 2:2:1 though statistically comparable, significantly increased seedling stem diameter, number of primary branches and canopy spread than other ratios in both seasons. Also, at 3MAS potting mixtures of 2:1:1, 2:1:3, 2:3:1 and 2:2:3, though statistically similar, significantly increased height at first branch and root length more than the other ratios regardless of the study year. The study concluded that Gujba provenance gave superior seedling growth performance in most of the sampling period. The study concluded that potting mixture in the ratio 2:1:1 was most appropriate for morphological growth characters of gum Arabic provenances. It is therefore recommended for profitable seedling production in the study area.

Keywords: Emergence, Gum Arabic, Potting mixture, Provenance, Seedling.