B-126: A method of measuring the surface area of coconut root *(Cocos nucifera* L.)

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Estimation of nutrient absorption efficiency of coconut palm based on root length and root weight is tedious and high variability is encountered due to the variable diameter of its root system. Hence, the objective of this study was to develop a method to estimate the surface area of coconut roots.

An inexpensive water displacement instrument was constructed by using a glass capilary tube (1 mm) fused to a glass cylinder with a larger diameter (5 cm) and was calibrated using a micro-pipette to accurately measure the volume of roots. A micro-caliper was used to measure the root radius.

Measurement of known volumes of water ranging from 1 ml to 5 ml gave reproducible and exact values ($r=0.9999$; regression co- efficient = 1.00 at $P=0.001$ level and SE = + 0.0033). Repeated means of volume of roots also gave reproducible values. Thus, the precision and accuracy of volume measurement by the water displacement instrument was very high. The root radius measured with micro-screw caliper and the root volume obtained by the water displacement method can be used to calculate the root surface area of coconut roots.