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Domestication Potential of Some Important Ntfps Tree Species: Farm-level Tree Growth Characteristics, Fruit Phenotypic Variation and Economic Assessment

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Abstract

Tropical forests contain many indigenous tree species that produce locally important Non-Timber Forest Products (NTFPs) with immense nutritional, economic, ecological, social and cultural values. Farm level tree growth characteristics, fruit phenotypic variation and economic potential of Chrysophyllum albidum, *Irvingia gabonensis* and Garcinia kola in rainforest and derived ecosystems of Nigeria were assessed. Growth measurements were made on 50 trees of each species selected from five villages in each ecosystem, resulting in 300 trees for the study. Two sets of questionnaires were used to obtain information from farmers and marketers of the species in three randomly selected urban and rural markets from each ecosystem. Depending on ecosystem and species, mean tree age varied from 19.5 — 4 3.5 years, with trees in rainforest being older than those in derived savannah. Most (92.3—100 %) C. albidum, *I. gabonensis* and G. kola trees were found within farmlands in both ecosystems. Between 40 — 80 % of the trees in derived savannah were planted by farmers while only 2 — 6 % in rainforest were planted. C. albidum and *I. gabonensis* trees in rainforest were significantly older, taller, with larger dbh and deeper crowns than those in derived savannah ecosystem. *I. gabonensis* fruits contained one seed, while C. albidum and G. kola fruits had 4—5 and 1—4 seeds, respectively. A wide variation was observed in the phenotypic characteristics of the fruits and seeds. While farming of fruit trees is male dominated (76.2—92.3 %), marketing of their products is female dominated (60—100 %). Annual income from sale of C. albidum, *I. gabonensis* and G. kola ranged from US$300 to over US$1300, with income highest and lowest at farm gate and urban market, respectively. This income contributes between 20—60 % to total family annual income. The old age of a high percentage of the trees and the high income derived from sale of their products underscores the necessity for their domestication. Since domestication of indigenous fruit trees is a farmer driven exercise, farmers should be encouraged and/or assisted in their domestication efforts.

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