

# Lipid Content and Fatty Acid Profiles in Seed, Pulp, and Shell of *Saba Senegalensis* Fruit from Different Locations of Burkina Faso

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*Saba* is a tangy to sweet or sweet-sour yellowish fruit produced by the wild vine *Saba senegalensis* (Apocynaceae). *Saba* is increasingly domesticated as an edible ornamental plant for its nutritional and therapeutic properties. Tasty and aromatic, this highly prized fruit is eaten raw or transformed into juice, syrup and jam. However, there are few in-depth studies on *Saba* composition, especially the lipids. Data about fatty acids profile of *Saba* fruit are limited, moreover on the lipid composition of the fruits parts from different locations. The aim of the present study was to determine the total oil content, fatty acid profile and evaluate their variation in the pulp, seed and shell of *Saba* fruits collected from six different geographical locations of Burkina Faso [Centre (C), Centre-Sud (CS), Centre-Ouest CO), Boucle du Mouhoun (BM), Hauts-bassins (HB) and Nord (N)]. On average, the total lipids content in the dry pulp ( $8.5\% \pm 2.9$ ) was significantly higher than in the shell ( $3.8\% \pm 0.4$ ) and seeds ( $1.5\% \pm 0.2$ ). Lipids of *Saba* seeds and shells are mainly unsaturated, at  $76.2\% \pm 3.4$  and  $73 \pm 14$ , respectively, whereas in the pulp, saturated fatty acids account for  $56 \pm 12$ , with significant variations between samples from different locations. In the seeds and shells, the main fatty acid was 18:1, with values ranging from  $44.2\% \pm 0.5$  in BM to  $46.5\% \pm 0.2$  in HB, and from  $27.5\% \pm 0.3$  in HD to  $44.0\% \pm 2.8$  in N, respectively. In the shell, variations in both linoleic and  $\alpha$ -linolenic acids varied significantly, depending on the locations. For example, values for 18:2 were  $29.9\% \pm 1.0$  and  $28.6\% \pm 0.4$  in the HB and C, respectively, and  $\alpha$ -18:3 levels ranged from  $7.8\% \pm 1.2$  in the N region to  $15.0 \pm 0.4$  in the HB region. The fatty acid composition varied the most in the pulp. Values for  $\alpha$ -18:3 ranged from  $12.6\% \pm 0.1$  to  $23.6\% \pm 0.6$  in CO and S regions, respectively, whereas the content in 16:0, the main fatty acid in the pulp, varied from  $28.8\% \pm 1.3$  in BM to  $33.4\% \pm 1.2$  in HB. Data indicate that seed and shell have low lipid contents, that are high in unsaturated FA, whereas the pulp provide higher levels in saturated FA. Analysis shows geographical variation trends among *Saba* populations which correlate with environmental variations, and could help in identifying elite populations with targeted higher nutritional and functional relevance.