

and elimination thermal treatment involving water. This perhaps explain the high level of reduction in cooked seen as recorded in this work [25].

Phytate content of the seeds was also reduced from 0.61% to 0.17% (*P. macrophylla*), 0.35% to 0.11% (*I. gabonensis*) and from 0.50% to 0.12% (*T. conophorum*) while the oxalate content reduced from 0.45% to 0.13%, 0.43% to 0.11% and 0.51% to 0.13% in *P. macrophylla*, *I. gabonensis* and *T. conophorum* seeds due to the cooking. Phytates and oxalate are recognized as ant-nutrient because both interfere with digestion and absorption of dietary mineral by chelation which render such mineral insoluble in their new farmers and hence unavailable for absorption and utilization in the body.

Generally, therefore, the process of cooking caused reduction in the quality of phytochemicals in the three seeds. While the reduction of some phytochemicals with health benefits may be undesirable, the mediation in the toxic one like HCN and the anti-nutrients like phytate and oxalate is desirable since they elucidate deleterious effects when ingested.

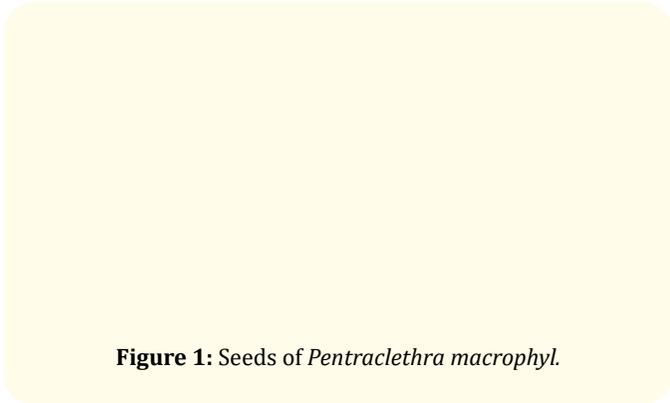


Figure 1: Seeds of *Pentaclethra macrophylla*.

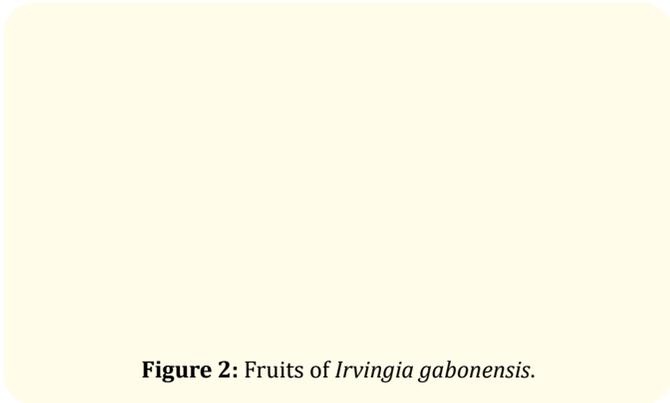


Figure 2: Fruits of *Irvingia gabonensis*.

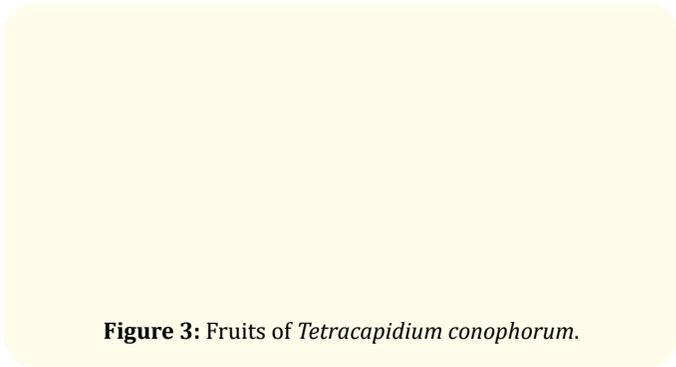


Figure 3: Fruits of *Tetracapidium conophorum*.

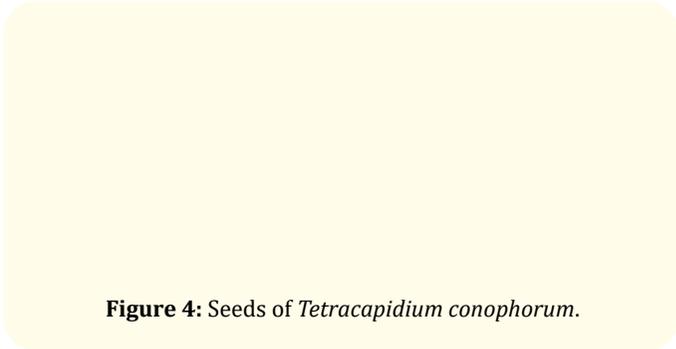


Figure 4: Seeds of *Tetracapidium conophorum*.

Bibliography

1. Enujiugha VN and Ayodele OO. "Evaluation of nutrients and some anti-nutrient in less known underutilized seed". *International Journal of Food Science and Technology* 38 (2003): 525-552.
2. Enujiugba U., et al. "Amylase in raw and fermented African oil-bean seed (*Pentaclethra macrophylla* Benth.)". *European Food Research and Technology* 2.4 (2002): 497-500.
3. Odunfa S A and Oyeyiola GF. "Microbiological study of the fermentation of (*Pentaclethra macrophylla* Benth.), a Nigerian indigenous fermented food flavor". *Journal of Plant Foods* 6 (1985): 155-163.
4. Obeta JAN. "A note on the microorganisms associated with fermentation of the African oil bean (*Pentaclethra macrophylla* Benth.)". *Pakistan Journal of Nutrition* 4 (1983): 382-383.
5. Agbor LON. "Marketing trends and potentials of *Irvingia gabonensis* Products in Nigeria. A paper presented at the CRAFT/ IITA/OSU MPT project seminar on *Irvingia gabonensis* Germ-plasm collection; Ibadan, Nigeria" (1994).
6. Ayuk ET, et al. "Uses, research in agricultural management and economic potential of *Irvingia gabonensis* in the humid lowlands of Cameroon". *Forest Ecology and Management* 113.1 (1999): 1-9.

7. Eyo Ekpo. Nigeria and the Evolution of Money. Whistable Litho Ltd (1979): 9-16, 31-3348-56.
8. Janick J and Paul RE. "The encyclopedia of fruits and nuts". Cab International England, Oxfordshire (2008).
9. Nwaoguikpe RN, *et al.* "Phytochemical and Biochemical Composition of African Walnut (*Tetracarpidium conophorum*)". *Journal of Pharmaceutical and Biomedical Sciences* 20.9 (2012): 1-4.
10. Ojobor CC., *et al.* "Studies on the phytochemical and nutritional properties of *Tetracarpidium conophorum* (Black walnut) seeds". *Journal of Global Biosciences* 4.2 (2015): 1366-1372.
11. Dalziel JM. "The Useful Plants of West Tropical Africa, Being an Appendix to the Flora of West Africa". The Crown Agent for the Colonies, London 11 (1937): 612.
12. James H Imam, *et al.* "Biscuit making potentials of tigernut (*Cyperus esculentus*) and pigeon pea (*Cajanus cajan*) flour blends". *Nigerian Journal of Nutritional Sciences* 32 (2011): 55-62.
13. FAO (Food and Agricultural Organization). Food and Agricultural indicators. ESSA Oct. 2005. FAO Rome (2005).
14. Pearson D. "The Chemical Analysis of Foods". Churchill Livingstone Edinburgh, London, New York (1976): 217-222.
15. Harborne JB. "Phytochemical Methods: A guide to modern techniques of plant analysis". London, New York, Champron and Hall.
16. Kirk H and Sawyer R. *Frait Pearson Chemical Analysis of food* 8th Longman Scientific and Technical: Edinburgh (1991): 211-212.
17. Okwu DE and Okeu ME. "Phytochemical vitamin and mineral content of two Nigeria medicinal dants". *International Journal of Molecular Medicine and Advance Sciences* 1.4 (2005): 375-381.
18. Onwuka ND. "Solvent Extraction and characterization of oils from the African Breadfruit, the African Mango and the oil bean seed". In progress in Food Engineering, C. Cantarelli and C peri (eds), Switzerland (2018): 175-179.
19. Malomo CO Iniaghe, *et al.* "Proximate and phytochemical constituents of leaves of some *Acalypha* species". *Pakistan Journal of Nutrition* 8.3 (2009): 256-258.
20. Okpala LC., *et al.* "Physiochemical and sensory properties of cookies made from blends of germinated pigeon pea, fermented sorghum and cocoyam flour". *Food Science and Nutrition* 1.1 (2013): 8-14.
21. Gray JA and BeMiller JN. "Bread Staling Molecular Basis and Control. The channel of starch granules". *Food Science Biotechnology* 11 (2003): 247-254.
22. Osuagwu GGE and Ihenwosu AO. *American Journal of Phyto-medicine and Clinical Therapeutics* 2.1 (2014): 001-012.
23. Edeoga HO and Eriata DO. "Alkaloid, tannin and saponin contents of some Nigerian medicinal plants". *Journal of Medicinal and Aromatic Plant Science* 23 (2001): 244-249.
24. Okwu D E and Omodamiro O D. "Effects of hexane extract and phytochemical content of *Xylopia aethiopica* and *Ocimum gratissimum* on the uterus of guinea pig". *Bio Research* 3.2 (2005): 40-44.
25. Aju PC and Okwulehie IC. "*Pentaclethra macrophylla* (Bentham): an important but neglected fruit tree species in South-Eastern Nigeria". In: Popoola, L., Mfon, P. and Oni, P.I. (eds.) Proceedings of the 30th Annual Conference of the Forestry Association of Nigeria held in Kaduna, Kaduna State, Nigeria between 7th and 11th of November.

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