

Comparative Study on the Thickening/Viscosity of Ogbono Seed Powder from *Irvingia gabonensis* and *Irvingia wombolu* Species

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Abstract : Ogbono seed is the seed obtained from African bush mango (*Irvingia gabonensis*) and bitter bush mango (*Irvingia wombolu*). *Irvingia gabonensis* is known for its sweet edible pulp while *Irvingia wombolu* has a bitter pulp. Their seed powder is used in cooking soup known as ogbono soup in Nigeria and in West Africa. The powder thickens when cooked and researches have shown that it has medicinal uses such as lowering cholesterol; aiding weight loss and helps in improving diabetes control. The nutritional composition of the seeds indicated that *Irvingia gabonensis* contains 8.60% protein, 13.8% carbohydrate, 2.0% moisture, 1.5% crude fiber, 16.4% ash, and *Irvingia wombolu* contains 7.38% protein, 25.75% carbohydrate, 11.7% moisture, 0.84% crude fiber, 2.50% ash. Solvent extraction of these seeds has shown that the seed of the two species are oil seeds with approximately 70 % and 52 % for *Irvingia gabonensis* and *Irvingia wombolu* respectively. One major setback using ogbono seed powder in cooking soup is identifying the specie of ogbono seed powder that thickens most within the same cooking condition and how temperature affects the thickness of ogbono seed powder which determines its viscosity and in turn affects the quality of the soup and its nutrients. This research work monitored how the viscosity of ogbono species after being sun dried for one week changes with temperature. The result showed that heating 20 grams of powdered *Irvingia gabonensis* and *Irvingia wombolu* at 30 OC, 45 OC, 55 OC, 65 OC, 75 OC, 85 OC and 95OC respectively in 200 ml beaker mixed with 100 ml of water, the viscosity of both species decreases with increase temperature with *Irvingia wombolu* having higher average viscosity in Pascal seconds (Pa.s) of 1.059, 1.042, 0.961, 0.778, 0.684, 0.675, and 0.495 at 30 OC, 45 OC, 55 OC, 65 OC, 75 OC, 85 OC and 95 OC respectively compared to *Irvingia gabonensis* with result 0.982, 0.920, 0.720, 0.646, 0.597 and 0.446 at 30 OC, 45 OC, 55 OC, 65 OC, 75 OC, 85 OC and 95 OC respectively. Also from the experiment carried out it was found out that the viscosity of both species decreases with ageing of the seeds and the quantity of ogbono seed powder used and amount of water added also affected the viscosity of both species. In conclusion, it was observed that under the same cooking conditions (temperature range, quantity of water added, time and quantity of ogbono seed powder used), *Irvingia wombolu* had higher viscosity which is a measure of its thickness and quality of nutrients compared to *Irvingia gabonensis* and the viscosity of both species decreases with increasing temperature.

Keywords : ogbono seed powder, temperature, viscosity , soup

Conference Title : ICFSNT 2018 : International Conference on Food Science, Nutrition and Technology

Conference Location : Montreal, Canada

Conference Dates : May 24-25, 2018