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# PROXIMATE ANALYSIS OF *XYLOCARPUS GRANATUM* KOENIG. SEEDS FROM DIFFERENT LOCATIONS OF MAHARASHTRA STATE.

**Damaji S. Bhise[1] , Ajit B. Telave[2]**

[1]Shri Shivaji Mahavidyalaya, Barshi Dist: Solapur
[2]Tuljaram Chaturchand College of Arts, Science and Commerce Baramati Dist: Pune
Email: damajibhise1982@gmail.com,

**Abstract**:
Mangroves are most important to produce many valuable products, and plays important role in ecological functions that support coastal ecosystem. Due to the unsustainable utilization, Indian mangrove resources being lost. *Xylocarpus granatum* is a mangrove species that has medicinal properties and declared as critically endangered plant for the Maharashtra state. In present study, proximate composition of seeds of the species was investigated. The results revealed that, seeds of *X. granatum* are a richest resource of energy.
Keywords: *Xylocarpus*, mangrove, proximate analysis, moisture content, crude lipid

**Introduction**:

Biochemical contents of plant are also called as phytochemicals. Phytochemicals are originated from the bioactive compound and plays most important role to treat diseases of human health. Phytonutrients plays important role as antioxidants, reducing agents, hydrogen donor against the diseases (Pandey and Rizvi, 2009). As per Kris Etherton *et al.* (2002), fruit and vegetable reduces risk of cardiovascular disease and cancer. Many plants are antidiabetic plants (Basar *et al.* 2013; Arif *et al.* 2014). Chemical compound such as polyphenol, flavonoid, Saponin, tannin, alkaloid, steroid etc. found in mangrove. It has greater demand in modern industry (Bandarnayake, 2002).

Mangrove ecosystem provides wide range of ecological and economical services and gives support to variety of coastal and marine ecosystem. Mangrove contain number of bioactive compounds which have toxicological, pharmacological and ecological importance. These are synthesized by primary and secondary metabolic activity. The knowledge of these suitable plants to understand herbal drug and their preparation (Kokpol *et al.*, 1990).

Polyphenols are capable to suppress cholesterol level. It prevents various life style diseases in adults including anti antherogenic effects, gastric ulcer, colorectal cancer, cataract and diabetics complications (Tanaka *et al.*, 1998).

*Xylocarpus granatum* is an important medicinal plant and well distributed in a number of countries of South-East Asia, Australia, and East Africa (Tomilson, 1986). Traditionally, different parts of this plant used as astringent and febrifuge. It is also useful in treatment of fever, malaria, thrush, cholera, dysentery, and diarrhoea in many countries including India (Duke, 1992-2016). The epicarp of fruit extracts of this plant has also reported for antidiabetic and antidyslipidaemic properties Srivastav *et al.*, (2011). This plant is ecologically most important and becoming endangered from natural habitat due to human interference. It is good source of nutrient and has potential for mankind (Viano *et al.*, 1995).

The mangrove fruits of *Xylocarpus granatum*, locally named as Samudrafal. It grows in specific coastal region. It is abundantly grown in the Revadanda mangrove forest. Local people use ripen fruits for the treating of stomachae diseases in children.

This study will provide information on the nutritional composition as crude protein, carbohydrate, crude lipid Ash crude fibre of fruit of *Xylocarpus granatum* was estimated.

**Materials and Methods:**

**Collection of plant material:**

Ripen fruits were collected from the coastal site of Revadanda and Jaigad estuary in the fruiting season.

**Sample preparation:**

Collected fruits were washed with the help of tap water and shade dried at room temperature. Dried seeds were powdered using electric blender. Ten gram of fruit powder mixed with 100 ml of solvent kept on rotatory shaker for 72 hrs. This mixed sample centrifuged at 10,000 rpm for 10 minutes at $4^0$C. The



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supernatant was collected and solvent was removed by evaporation. This extract was used for phytochemical analysis.

**Proximate analysis:**

The moisture and ash content were determined by gravimetric method (AOAC, 1990). The crude fibers were calculated by acid base digestion. It is estimated by Macro Kjeldhal method (Vogel, 1971). Crude fat content was analysed by gravimetric method by using Soxhlet extraction with ether according to Association of official Analytical Chemist (AOAC) method (1990). Carbohydrate was estimated by Phenol Sulphuric acid method (Dubois *et al*., 1956). Protein content was calculated by Lowry method (Lowry *et al*., 1951). Total lipids were determined by extracting powder with chloroform : methanol (1:2) as described by Bligh and Dyer (1959). The energy value was estimated by calculation method using following formula (Gul and Safdar, 2009).

Energy value (g/100gm) = [4 X crude protein] + [ 4 X carbohydrate] + [9 X crude fat]

The concentration of Polyphenol was determined according to the Folin-Ciocalteu method (Ough and Amerine, 1988).

**Result and Discussion:**

**Nutritional composition of seed:**

Nutritional value of seed collected from Revadanda estuary shows crude lipid (8.32%), Carbohydrate (28.4%), crude protein (1.25%) ash (2.01%) crude fiber (2.87%) and moisture (8.44%). Seeds collected from the Jaigad estuary show crude lipid (9.14%), carbohydrate (34.6%), crude protein (1.17%), ash (1.97%) crude fiber (2.68%) and moisture (7.35%).

Patil (2019) analysed same biochemical contents plant collected from the Sindhudurg district. The obtained results were compared with results of Patil (2019). The reading shows similarities with result. There is no significant difference in the plant growing in different environmental condition.

**Table 1: Comparative account of proximate values of plant samples collected from different locations of Maharashtra**

| Sr. No. | Nutrient | Revadanda | Jaigad | Sindhudurg (Patil, 2019) |
|---|---|---|---|---|
| 1 | Moisture | 8.44 | 7.35 | 9.36 |
| 2 | Ash | 2.01 | 1.37 | 2.06 |
| 3 | Crude protein | 1.25 | 1.17 | 4.91 |
| 4 | Crude lipid | 8.32 | 9.14 | 12.02 |
| 5 | Crude fiber | 2.87 | 2.68 | 3.42 |
| 6 | Carbohydrate | 17 | 13 | - |
| 7 | Phenolic content | 28.4 | 34.6 | 68.23 |
| 8 | Energy | 193.48 | 225.34 | 400.74 |

The amount of phenolic content is higher in the Revadanda region (17mg/gm). This data is compared with Hossain *et al*. (2016). Hossain *et al.* estimated phenolic content from the *Sonneratia apetala*. The phenolic content of *Xylocarpus granatum* (13-17 mg) is less than the *Sonneratia apetala* (33.4 mg). The total energy value 193.48 Kcal from Revadanda, 225.34Kcal from Jaigad. Highest value (400.74Kcal) found in the Sindhudurg region (Patil, 2019).

Gunwan *et al.* (2013) reported high amount of carbohydrate (52.42- 63.32%), protein (4.72-10.14%), lipid (10.65-11.09%) and Ash (10.07-11.59%).

Among the various bioactive component of fruit, Phenolic compound are largest group of phytochemicals that have potential role to prevent disease and promotephysical mental health. Although, Hossain *et al*., (2013) reported polyphenol content and antioxidant activity of *S. apetala*.

**Conclusion:**

Fruits of *Xylocarpus granatum* is richest resource of energy. It very rich in carbohydrate, protein and fat. It may helpful to cure digestible problems in the human being.

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