

# Novel Extraction Method of Tamarindus Indica Oil

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## Abstract:

The current exploration sights on employing tamarindus indica (tamarind seed) oil as a preferred therapeutic ayurvedic oil and evaluating its characteristics. Tamarind seed oil is attained by pulverizing tamarind seeds followed by novel extraction technique with befitting volatile solvent. This method of depuration is conservative when contrasted to mercantile oil extraction methods. The benefits of extracting the seeds into oil are unrevealed to many experts. So, the research enlightens to edify people about this possible medicinal oil.

**Keywords – Tamarindus indica, Tamarind seed oil, Solvent extraction**

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## I. INTRODUCTION

Tamarindus indica oil is a significant essential oil and rich in medicinal and anti-oxidative properties. However, the seed coat of Tamarind has been rarely used, signifying its potential unrewarded and there has been no focus on countable anti-oxidative character, anti-oxidative activity of tamarind seed was investigated. The microwave assisted extraction (MAE) method required heating for 30 min at 110°C only of the plant sample and evaporation of the water and essential oil of the plant material. It's good for heart, helps to manage diabetes, prevents urinary track infections, prevents cardiovascular disease. It treats dry eye as its direct use of oil can cure blinking, ocular heat and sensation in the human eye. It also helps in the importance of cell counting and signalling and is good for cell membranes.

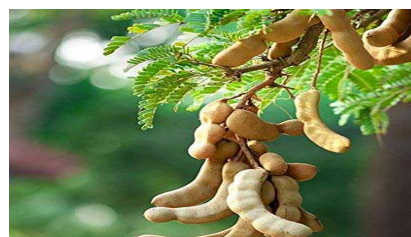


Fig.1. Tamarind Fruits with Seeds



Fig.2. Tamarind seeds

## 2.0 Materials and methods:

Collection of seeds randomly. The seeds are dried at 110°C for 1 hour. Dried seeds are dehulled for better recovery of oil and its physical appearance. Crushed tamarind seeds powder and solvent is mixed in the Mechanical Agitator for 30 minutes. The mixture is filtered using a filter paper

to get cake and miscella as products. Filtrate i.e. miscella is distilled by simple distillation for the recovery of oil solvent for 15 minutes. Physical and chemical properties of an oil are tested.



Fig.3. Extraction of tamarind seed oil

3. Results and discussion

The Tamarind seed oil (TSO) thus obtained has been investigated for various physical and chemical characteristics using classical experimental procedures. The results thus achieved are tabulated in T-I. By observation of the properties of Tamarind seed oil reveals that the density of this oil is higher than that of domestically consuming edible oils. T-II provides some important chemical characteristics of TSO.

TABLE I  
VISIBLE CHARACTERISTICS OF TAMARINDUS INDICA OIL

Property	Value
Sp. gr	1.30
Density	1300 kg/m <sup>3</sup>
Smell	Pleasant
Appearance	Golden Yellow
MC	NIL

TABLE II  
CHEMICAL CHARACTERISTICS OF TAMARINDUS INDICA OIL

ACHYRANTHES ASPERA OIL	Theoretical value	Experimental value
A.V	5.04	5.3
S.V	145.3	140.25
I.V	131	131.04
P.V	3.49	4

4. Conclusions

The Tamarindus indica oil was obtained from milled and extracted seeds by a series of steps and finally by solvent extraction with hexane followed by simple distillation to recover pure product of oil. The oil thus extracted was analyzed for various physical and chemical properties and comparison is made between theoretical and experimental values.

REFERENCES:

[1] F. Bakkali and M. Idaomar, "Biological effects of essential oils – A review," vol. 46, pp. 446– 475, 2008.  
 [2] A. El Asbahani et al., "Essential oils: From extraction to encapsulation," Int. J. Pharm., vol. 483, no. 1– 2, pp. 220–243, 2015.  
 [3] B. S. Vishwanath, T. V Gowda, and K. S. Girish, "The Anti-snake Venom Properties of Tamarindus indica ( Leguminosae ) Seed Extract," vol. 858, no. May, pp. 851–858, 2006.

- [4] C. S. Kumar and S. Bhattacharya, “Tamarind seed: Properties, processing and utilization,” *Crit. Rev. Food Sci. Nutr.*, vol. 48, no. 1, pp. 1–20, 2008.
- [5] M. A. Kader, M. R. Islam, M. Parveen, H. Haniu, and K. Takai, “Pyrolysis decomposition of tamarind seed for alternative fuel,” *Bioresour. Technol.*, vol. 149, pp. 1–7, 2013.
- [6] D. Santos Sou, C. Augusto Ba, W. da Silva O, J. Teixeira F, and H. Teixeira G, “Quantitative Profile of Fatty Acids and Tocopherols in Tamarind Seeds (*Tamarindus indica* L.) From Different States of Brazil,” *Res. J. Phytochem.*, vol. 11, no. 3, pp. 118–128, 2017.
- [7] U. Tril, J. Fernández-López, J. Á. P. Álvarez, and M. Viuda-Martos, “Chemical, physicochemical, technological, antibacterial and antioxidant properties of rich-fibre powder extract obtained from tamarind (*Tamarindus indica* L.),” *Ind. Crops Prod.*, vol. 55, pp. 155–162,
- [8] S. Selmi, K. Rtibi, D. Grami, H. Sebai, and L. Marzouki, “Rosemary (*Rosmarinus officinalis*) essential oil components exhibit anti-hyperglycemic, anti-hyperlipidemic and antioxidant effect in experimental diabetes,” *Pathophysiology*, vol. 24, no. 4, pp. 297–303, 2017.