

Studies on viscosity of Gum Karaya in Gadchiroli district, Maharashtra, India

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ABSTRACT

The present work is related with the variation in viscosity with the concentration of the gum samples. The Gum Karaya is collected from Gadchiroli District of Maharashtra State during Summer-2017. The study of viscosity is carried out at 30°C. The following results of relative viscosity are obtained. The calculated relative viscosities are 12.26, 13.18, 14.15, 15.29 and 16.58 for the concentration of the gum samples 0.2%, 0.4%, 0.6%, 0.8% and 1.0% respectively.

Keywords : *Viscosity, Gum Karaya, Gadchiroli, Maharashtra*

INTRODUCTION

Gum Karaya, *Sterculia gum*, is the dried exudates obtained from stem and branches of *Sterculia* tree, family *Sterculiaceae*. The gum is collected after tapping or blasing the tree or as natural exudates (Elkhalifa. & Hassan, 2004). The dried Gum Karaya appears as hard lumps.

Major areas producing Gum Karaya in India are Tropical Himalayas, West and Central India, Deccan Plateau and throughout the Eastern and Western Ghats (Chopra et al., 1956). The fully mature tree attains a height of more than 30 feet in forest areas with a significant smooth greenish-grey bark or white bark peeling off (Krishnamurthy, 1993).

According to WHO, the medicinal plants would be the best source to obtained variety of drugs (Dewick, 1996). About 80% of individuals from developed countries use traditional medicine. Natural Gums are hydrophilic carbohydrate polymer of high molecular weight, generally composed of monosaccharide units joined by glucosidal bonds. Gum Karaya in the dry state is not soluble in water but only forms viscous suspensions. The gum enormously swells in water and forms thick suspensions (Rao & Gayatri, 2016). They are generally insoluble in oil and

organic solvents such as ether, hydrocarbons, alcohols (Evans et al., 1989).

The present study is focused on viscosity studies of Gum Karaya at different concentrations.

MATERIALS AND METHODS

All the Gum Karaya samples were collected from the Gadchiroli District of Maharashtra during Summer-2017. Gadchiroli District has 78.4% reserve forest which consists of high dense forest and rich biodiversity.

Gum samples were dried at room temperature and cleaned by hand to remove foreign particles. The samples were further ground by using a mortar and pestle, sieved through sieve No. 4 and kept in air tied glass containers. The viscosity measurements were carried out by using Ostwald's Viscometer by taking the gum samples with concentrations 0.2%, 0.4%, 0.6%, 0.8% and 1.0%, at 30°C.

RESULTS AND DISCUSSION

The relative viscosity for Gum Karaya varies from 12.26 to 16.58 for the concentration 0.2% to 1.0% sample. These values are comparable with the literature values of Gum Karaya. The viscosity and swelling ability of the gum decides the quality of gum in industrial applications.

Table 1: Relative Viscosity variation with concentration of gum samples.

Sr. No.	Concentration of Gum Sample (%)	Relative Viscosity
1	0.2	12.26
2	0.4	13.18
3	0.6	14.15
4	0.8	15.29
5	1.0	16.58

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