

## ACID VALUES OF SOME SEED OILS FROM ARID ZONE OF RAJASTHAN

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**Abstract**— The desert of Rajasthan is well known for specific phytochemicals in plants. Acid value is an important parameter for studying scope of oils in lubrication. In the course of our research acid values of some seed oils were determined. The AOCs and ASTM methods were used for analysis

**Keywords**— acid values, seed oil, AOCs Methods.

### I. INTRODUCTION

(A) What are lubricants?

Lubricants are the substances which are used to reduce wear and tear in the machinery. There are a substances used as lubricants such as lubricants including petroleum products, mineral oils, blended oils, plant oils and animals fats.

(B) Parameters of Lubricants

To identify the quality, use and need of the lubricant for its current need or future aspects there are many aspects. Some of which are listed below

(1) Viscosity And Viscosity Index-The property of a fluid to resist its own cause of motion is called its viscosity. The rate of change of viscosity with temperature is expressed by an arbitrary scale known as viscosity index. A lubricant which shows little change in viscosity with temp. or having high V.I. is preferred.

(2) Flash And Fire Point-It is the lowest temperature at which the vapors of oil ignite for a moment when a small flame is brought near it while fire point is the minimum temperature at which the vapors of oil burn simultaneously for 5

seconds. A good lubricant should not volatilize and if it does its vapors should not catch fire under the working temperatures. Hence a lubricant should have high flash and fire points.

(3) Cloud And Pour Point-The temperature at which a liquid becomes hazy in appearance is known as cloud point whereas the temperature at which a liquid ceases to flow is known as pour point. A good lubricant should not freeze under low temperature conditions. Therefore a lubricant having low cloud and pour point is preferred.

(4) Emulsification and Steam Emulsification Number (SEN) -The process of forming emulsions is known as emulsification. Emulsions are the combination of two immiscible liquid. To form a mixture of such a pair, a third substance known as 'Emulsifier' is added. For determining SEN steam is passed through a test tube containing 20 ml of oil till temperature rises to 90°C is noted and time is noted when oil and water separate out. This time in seconds is known as SEN. A good lubricant should have low SEN.

### Material and Method

(A) Selection of Plants : List of selected plants are given in table 1.

Botanical Name	Family
Moringa oleifera	Moringaceae
Ricinus Communis	Euphorbiaceae
Simmondisa Chinensis	Buxaceae

(5) Precipitation Number-The precipitation number of an oil is a measure of the amount of solids classified as asphalts or carbon residue contained in the oil. The number is reached when a known amount of oil is diluted with naphtha and the precipitate is separated by centrifuging-the volume of separated solids equals the precipitation number. This test detects the presence of foreign materials in used oils. An oil with a high precipitation number may cause trouble in an engine. It could leave deposits or plug up valves and pumps.

(C) Definition of Acid value The acid value is the number of milligrams of potassium hydroxide necessary to neutralize the free acids in 1 gram of sample. With samples that contain virtually no free acids other than fatty acids, the acid value may be directly converted by means of a suitable factor to percent free fatty acids.

(D) Scope of Determination of Acid Value - This value indicates the presence of free acids in a sample of oil/fat. For lubricating oils the acid value is determined to check the amount of hydrolysed fats.

#### RESULT AND DISCUSSION

The acid values were found quite similar to the earlier reported values that of commonly used seed oils. These are summarized in table-2

#### CONCLUSION AND SCOPE

The seed oils of *M.oleifera* is classified as non-drying oil. It has been reported as food grade cooking oil as well as industrial oil. It can be recommended for large scale cultivation for beneficial exploitation. The seed oil of castor is non edible so may be a substitute of food oil used in industries.

Since these plants are commonly found in almost all parts of Rajasthan and requires less care, hence its cultivation on large scale for industrial applications has more advantages. Source of multi purpose phytochemicals including the seed oil also.

Again, since the oil contains is high so applications in industrial, domestic and medicinal areas should be given attention by researchers.

TABLE-2ACID VALUES OF SEED- OIL

SEED OIL SAMPLE	ACID VALUE
1	180
2	98
3	196

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