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Studies on the Fixed Oil of the Seed of *Albizia Amara*

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Studies on fixed oil of the seeds of various varieties of *Albizia*, belonging to family Leguminosae, have already been carried out by various workers in the past [1-7]. The present studies have been carried out by using modern techniques which gave noticeably different results [8-10]. The studies on the seed oil of *Albizia amara* is also a continuation of this series Table 1.

The course of studies was the same as followed by us previously [8-10]. The physical constants were determined by standard procedures [11]. Fractionation into lipid classes was also carried out as described in our previous papers. The results are given in Table 2A-B.

TABLE1. PHYSICO-CHEMICAL PROPERTIES OF THE SEED OIL OF *A. AMARA*.

Fixed oil	5.0%
Colour	Yellow Brown
Specific gravity	1.093
Refractive index at 30°C	1.464
Saponification value	172.28
Acid value	3.301
Iodine value	108.095
Ester value	168.86
INS Value	65.36
Peroxide value	27.26
Unsaponifiable matter	2.06

TABLE 2A. WT % OF LIPID FRACTION OF THE SEED OIL OF *A. AMARA*

Neutral lipid	98.9%
Polar lipid	1.1%

TABLE 2B. FRACTIONS OF THE NEUTRAL LIPIDS OF THE SEED OIL OF *A. AMARA*.

Lipids	(%)
Hydrocarbons	0.9 "
Wax esters	3.0 "
Triglycerides	73.4 "
Diglycerides	11.7 "
Monoglycerides	5.2 "
Free fatty acids	2.1 "
Sterols	3.7 "

The free fatty acids were liberated from the oil and their methyl esters were prepared by standard procedures [11]. These esters were analysed using a Shimadzu GC-14A Gas Chromatograph equipped with a flame ionization detector and a packed glass column (1.6 m x 3 mm i.d.) containing 15% diethylene glycol succinate on Shimalite AW 201 (60-80 mesh). Nitrogen was used as a carrier gas with a pressure of 0.3 kg/cm^2. The column temperature was maintained at 200°C, while the detector and injector temperature were 300°C and 250°C respectively. The methyl esters were identified by their retention times and peak enhancement using authentic standards. The percentage composition of individual components was calculated on the basis of peak area using Shimadzu C-R4A Chromatopac Data Processor.

The fatty acid composition of the three samples from the various areas of Pakistan, i.e., Lahore (sample A), Sialkot (sample B) and Rawalpindi (sample C) was determined and the results shown in Table 3. These samples have yielded almost the same results and they bear a close relationship to other varieties of *Albizia* [8-10]. Chandra *et al.* [6] had used the conventional methods for the determination of the fatty acid composition which led to the noteworthy different results. The possibility of variation within the species was ruled out by collecting samples from various areas of Pakistan. The difference in climate or soil can only bear a negligible effect on the fatty acids composition of the seed oil.

TABLE 3. FATTY ACID COMPOSITION OF THE SEED OIL OF VARIOUS SAMPLES OF *A. AMARA*.

Fatty acid	Sample A (%)	Sample B (%)	Samples C (%)	Average (%)
Capric	0.93	0.96	0.96	0.95
Lauric	1.17	1.17	1.20	1.18
Myristic	2.26	2.21	2.19	2.22
Palmitic	23.98	23.78	23.98	23.90
Stearic	6.93	6.97	6.98	6.98
Arachidic	3.27	3.26	3.19	3.24
Behenic	6.81	6.88	6.86	6.85
Lignoceric	1.19	1.17	1.18	1.18
Oleic	22.33	22.21	22.18	22.24
Linoleic	30.85	30.73	31.54	31.04

Work is in progress for the identification and structure elucidation of the sterols and wax esters present in the oil which may prove useful for various purposes.

Key words: Fixed oil, Physico-chemical properties, Lipid fractions, Fatty acid composition.

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