Short Communication

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Fatty Acid Composition of Seeds of the *Ageratum Conyzoides* Linn.

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Ageratum conyzoides seed oil (14%) has been examined for its physico-chemical characteristics and fatty acid composition. Thin layer of the oil into lipid classes resulted into polar lipids (3.5%) and neutral lipids (96.5%). Column chromatography of the oil afforded hydrocarbons (0.5%), wax esters (1.8%), triglycerides (88%), F. F. A. and diglycerides (5.7%) and monoglycerides (4%). The fatty acid composition of various lipid classes ranged from C_{14} to C_{22} acids in different amounts.

Ageratum conyzoides Linn. belonging to N. O. Compositae commonly known as billy goat weed, is a common hairy annual weed of all hot countries, appearing after the rains and flowering through the cold season. The present study was undertaken to provide detailed information regarding physico-chemical characteristics (Table 1) and fatty acid composition of *Ageratum conyzoides* Table 2. *A. conyzoides* seeds were collected from locations around PCSIR Laboratories Complex Lahore in the month of June, 1990, dried in the shade and sieved to free from dust and other plant material. The seeds were powdered in a blendor and thoroughly extracted with *n*-hexane in a Soxhlet apparatus.

Various physico-chemical investigations were determined according to the standard procedures [2] and are given in Table 1.

The oil was fractionated into different lipid classes by the method of Paquot [3] and various lipid classes are given in Table 3.

Methyl esters of the oil were prepared by the standard method of saponification with alcoholic potash [4]. Methyl esters were analysed by GC on Pye-Unicam 104 gas chromatograph equipped with a flame ionization detector. WCOT fused quartz column 25m x 0.22mm i.d.; coated with free fatty acids phase (FFAP) was used. Percentage composition of individual components was calculated on the basis of peak area using SP-4100 (Spectra Physics) computing integrator.

The oil content of *A. conyzoides* seeds is 14% TLC showed that the oil consisted primarily (96.5%) of neutral lipids mainly triglycerides but including hydrocarbons, waxesters, free fatty acids, mono and diglyceride) and only 3.5% of polar lipids were present (Table 4). The fatty acid composition of the seed oil of this region particularly from Pakistan being reported for the first time is given in Table 2.

The oil consists mainly of unsaturated fatty acids (79%) and the dominant fatty acids are linoleic (45.52%) and oleic (26.51%), while linoleic (54.74%) and oleic (8.74%) acids have been reported by Devdhar *et al.* [5]. Thus according to our analysis the total content of C_{18} fatty acids in this plant is higher by 3.5% as compared with their results. The difference observed in this case may be due to difference in ecological conditions such as soil and climate and our use of wall-coated FFAP capillary column.

Studies on the proteins, carbohydrate content and also the unsaponifiable matter of the oil are in hand and will be reported elsewhere.

Table 1. Physico-Chemical Characteristics of *A. conyzoides* Seed Oil.

Moisture content of the seeds (w/w)	9%
Fixed oil (w/w)	14%
Specific gravity at 30°	0.932
Refractive index (Abbe's at 30°)	1.4720
Acid value	2.5
Saponification value	182.7
Iodine value	104.4
Peroxide value	141.5/m.egs.kg
Unsaponifiable matter	6%

Table 2. Fatty Acid Composition of the Seed Oil of *Ageratum conyzoides* Linn.

Fatty acids	Total lipids	Reported by Devdhar
$C_{16:0}$	12.67	16.53
$C_{18:0}$	6.35	7.06
$C_{18:1}$	25.52	8.73
$C_{18:1}$	0.99	–
$C_{18:2}$	45.52	54.74
$C_{18:3}$	6.91	11.93
$C_{20:0}$	0.93	–
$C_{22:0}$	1.03	–

Table 3. Distribution and Nature of Various Fractions Isolated from the Hexane Extract of *A. conyzoides* Linn.

No.	Rf	Weight %	Chemical nature of the fraction
1.	0.91	0.5%	Hydrocarbons
2.	0.83	1.8%	Wax esters
3.	0.52	88.0%	Triglycerides
4.	0.39	5.7%	F.F.A. and diglycerides
5.	0.17	4.0%	Monoglycerides

Table 4. Wt. % of Lipid Fraction of *A. conyzoides* Oil.

Neutral lipids	96.5%
Polar lipids	3.5%

Key words: Fatty acids, *A. conyzoides*, Composition.

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