SITOSTEROL AND TRITERPENOIDS FROM Ancathia igniaria

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Ancathia ingiaria Pall. ex Spreng. is a perennial plant of the family Asteraceae growing widely on the territory of Kazakhstan. The chemical composition of this plant has not previously been studied.

From the flowerheads and leaves of A. *igniaria* gathered in the Bakhty mountains, Karaganda province, KazSSR, by extraction with chloroform followed by chromatography of the total material so obtained on a column of type KSK silica gel (ratio of the total material to support 1:20) with petroleum ether—benzene (9:1, 4:1, and 1:1), four crystalline substances (I-IV) have been isolated: I)  $C_{29}H_{56}O$ , mp 136-138°C,  $[\alpha]_D$  -36.5°; II)  $C_{30}H_{50}O$ , 198-200°C,  $[\alpha]_D$ +90°; III)  $C_{30}H_{50}O$ , mp 212-214°C; IV)  $C_{30}H_{50}O$ , mp 217-218°C,  $[\alpha]_D$  +51°.

By comparing the physicochemical constants obtained and the results of IR and PMR spectroscopy with literature information [1-4] and directly with authentic samples on a Chrom-5 chromatograph (sorbent SE-30, carrier gas nitrogen), substances (I)-(IV) were identified as  $\beta$ -sitosterol,  $\beta$ -amyrin, lupeol, and taraxasterol, respectively.

The roots of A. *igniaria* were extracted with hot acetone in a Soxhlet apparatus. The resin obtained after the evaporation of the solvent was chromatographed on a column of type KSK silica gel at a ratio of the total material to support of 1:20. When the column was eluted with petroleum ether and with petroleum benzene (9:1, 4:1, and 1:1),  $\beta$ -sitosterol and three crystalline substances (V-VII) were isolated: V) C<sub>32</sub>H<sub>52</sub>O<sub>2</sub>, mp 246-247°C, [ $\alpha$ ]<sub>D</sub> +81.0°, VI) C<sub>32</sub>H<sub>52</sub>O<sub>2</sub>, mp 206-207°, [ $\alpha$ ]<sub>D</sub> +38°; VII) C<sub>32</sub>H<sub>52</sub>O<sub>2</sub>, mp 237-240°C, [ $\alpha$ ]<sub>D</sub> +103°; these were identified, respectively, as the acetates of  $\beta$ -amyrin, of lupeol, and of taraxasterol from their physicochemical constants, the results of elementary analyses, their IR and PMR spectra, and by the acetylation of (II-IV).

 $\beta$ -Amyrin, lupeol, and taraxasterol acetate possess growth-regulating activity in relation to cell cultures of higher plants.  $\beta$ -sitosterol is a growth regulator of the dwarf pea [5].

## LITERATURE CITED

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