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FLAVONOIDS OF *Astragalus flexus*

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We have previously isolated quercetin and kaempferol from the epigeal part of *Astragalus flexus* Fisch. (flexile milkvetch) [1]. In a further separation of the total flavonoids on a column of polyamide sorbent, we have isolated another three substances.

Substance (I) with the composition $C_{16}H_{12}O_7$, [mp 303-305°C (from 40% ethanol), melting point of the acetate 202-204°C, λ_{max} (ethanol) 370, 255 nm] was assigned to the aglycones [2]. Qualitative reactions and IR and UV spectroscopy showed the presence of free hydroxy groups in positions 3, 4', 5, and 7, and of a methoxy group in position 3'. The results obtained enable substance (I) to be characterized as 3,4',5,7-tetrahydroxy-3'-methoxyflavone (isorhamnetin).

Substance (II) had the composition $C_{21}H_{20}O_{11}$, mp 179-180°C (from 40% ethanol), λ_{max} (ethanol) 357, 255 nm. The acid hydrolysis of (II) gave an aglycone, which was identified as kaempferol, and glucose, which was identified by paper chromatography. A study of the UV spectra of the aglycone and of the glycoside showed that the glycoside had free hydroxy groups in positions 4', 5, and 7 and the sugar component in position 3. On the basis of the results obtained, it may be concluded that substance (II) has the structure of kaempferol 3-O- β -D-glucopyranoside and is identical with astragalin [3].

Substance (III) had the composition $C_{22}H_{22}O_{12}$, mp 171-173°C (from 40% ethanol), λ_{max} (ethanol) 355, 257 nm. Acid hydrolysis gave the aglycone, identical with isorhamnetin (yield 49.7%) and glucose, which was identified by paper chromatography. Qualitative reactions and UV spectroscopy with diagnostic additives enabled the substance under investigation to be characterized as isorhamnetin 3-O- β -D-glucopyranoside [4]. This is the first time that any of these compounds have been isolated from *Astragalus flexus*.

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