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## TRIFOLIN FROM LESPEDEZA TOMENTOSA

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The herb *Lespedeza tomentosa* (Thunb.) Sieb. (woolly Lespedeza) collected in 1964 in the Far East (1.4 kg) was comminuted and extracted with methanol, the solvent was distilled off in vacuum, and the residue was dissolved in water and transferred to a column of polyamide. The column was washed with water and then 10% alcohol eluted 4.5 g of a substance with a flavonoid structure, which was rechromatographed on polyamide. Yield 1.8 g (0.13%; from alcohol), mp 241°-242° C, composition  $C_{21}H_{20}O_{11} \cdot 3/2H_2O$ ,  $\lambda_{max}$  268 and 354 m $\mu$ .

The acid hydrolysis of the substance gave galactose, which was identified by paper chromatography [1] and kaempferol with mp 283°-284° C,  $\lambda_{max}$  267, 323, 366 m $\mu$ , tetraacetate with mp 184°-185° C.

The position of the sugar residue in the kaempferol was ascertained by methylation and subsequent splitting off of the sugar [1]. This gave 5, 7, 4'-trimethylkaempferol with mp 146°-147° C, which was confirmed by the zirconium test [2].

Thus, a comparison of the physicochemical constants and the IR and UV spectra with literature data has shown that the substance isolated is kaempferol 3-galactoside (trifolin).

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## STRUCTURE OF THE FLAVONOIDS OF CRATAEGUS CURVISEPALA

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We have previously reported the isolation from the leaves of *Crataegus curvisepala* Lindm. of the total flavonoids [1] and of eight individual flavonoids B, D, E, F, G, I, J, and K [2, 3]. Flavonoids B, D, E, G, and J were isolated from hawthorn for the first time [2]. Flavonoid G, which we have called cratenacin is a new C-glycoside containing an acetyl group [4].

The present paper gives the results of a chemical study of flavonoids F, J, D, B, and E (table).

The aglycone of the flavonoid glycoside F was identified as vitexin. It was established by oxidative degradation with sodium metaperiodate [4] that the sugar component of the glycoside is rhamnose attached to the glucose molecule of vitexin through C<sub>4</sub>. Thus, the results of a chemical and spectroscopic investigation show that the flavonoid that we have isolated is 5, 7, 4'-trihydroxyflavone 8-C- [ $\beta$ -D-glucopyranosyl (1  $\rightarrow$  4)]- $\alpha$ -L-rhamnopyranoside, i. e., deacetyl-