IDENTIFICATION OF *Lotus tenuis* (Waldst. *et* Kit.) FLAVONOIDS- PART III

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As a consequence of the studies related to flavonoid production in the forage legume *Lotus tenuis* cv. *Chajá* (Strittmatter *et al.*, 1988, 1990 and 1991) a complete typification of this species was obtained.

The dependence of flavonoid composition on developmental stage was confirmed; flowering and fruiting are the most suitable stages for the flavonoid description of *L. tenuis*.

During the reproductive stage the production of kaempferol-3-O-glucoside (K-G) was detected (Table 1), while free kaempferol (K) and kaempferol-3-O-glucosyl-7-O-rhamnoside (K-G-R) were determined during the whole life-cycle of the plant. Therefore, these two compounds (K and K-G-R) can be considered as chemosystematic markers for *L. tenuis*.

The stems are the organs which showed a constant concentration of all analysed substances (Table 1), but the higher concentration of these flavonoids in the leaves make them most appropriate for a chemosystematic study.

We suggest that the presence of free K as an aglycone would indicate a most simple flavonoid metabolism in *L. tenuis* than in other *Lotus* species (Harney and Grant, 1964; 1965), because of the lack of quercetin and methylated flavonols (Harney and Grant, 1964; 1965; Jay *et al.*, 1978; Yang *et al.*, 1989).

2) The distribution pattern of the flavonoids among the plant organs suggests a different rythm of production: a) there is a quantitative variation pattern reflected in flavonoid level with development stage, when each organ is considered. b) there is also a qualitative variation pattern described by the absence of K-G at the vegetative stage of the plants, when it is compared with flowering or fruiting.

In spite of these results we consider that it is necessary to investigate the different *Lotus* species for individual flavonoid variation.

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Table 1: DISTRIBUTION OF FLAVONOID COMPOUNDS IN DIFFERENT PLANT ORGANS DURING FOUR DEVELOPMENT STAGES

Phenological Stage	Plant Organ	K	K-G	K-G-R
Vegetative	stems	+	no	+ +
	leaves	+	no	+ +
Floral bud	stems	+	no	+ +
	leaves	+	±	+ +
	floral bud	+ +	+	+ + +
Flowering	stems	+	±	+ +
	leaves	+ +	+	+ + +
	flowers	+	+ +	+ +
Fruit developed	stems	+	±	+ +
	leaves	+ +	+	+ + +
	fruits	+	±	+

± traces + presence ++ abundance +++ high abundance

K = kaempferol
K-G = kaempferol-3-O-glucoside
K-G-R = kaempferol-3-O-glucosyl-7-O-rhamnoside