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# Flavonoid chemistry of *Chuquiraga* (Asteraceae)

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## 1. Subject and source

Fresh plant material was collected in different Argentine provinces. A voucher of each specimen is deposited at the Herbarium of the Fundación Miguel Lillo (LIL). *Chuquiraga atacamensis* Kuntze collected in SALTA: Dept. Los Andes (LIL 603627); *C. parviflora* (Griseb.) Hieron. collected in CATAMARCA, Dept. Andalgalá (LIL 605897); *C. straminea* Sandwith collected in NEUQUEN, Dept. Collan-Cura (LIL 605812).

## 2. Previous work

Previous work of flavonoids in other species of *Chuquiraga* (Bohm and Stuessy, 1995; Mendiondo et al. 1997, 2000; Senatore et al., 1999).

## 3. Present study

Aerial vegetative parts were successively extracted with 80% MeOH, 50% MeOH and MeOH. The concentrated extracts were run bidimensionally by PC on Whatman

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Table 1  
Flavonoid distribution in *Chuquiraga* species<sup>a</sup>

	<i>Chuquiraga atacamensis</i>	<i>Chuquiraga parviflora</i>	<i>Chuquiraga straminea</i>
Q-3-Gl	+		+
Q-3-Rut	+	+	+
K-3-Gl	+	+	+
K-3-Rut	+	+	+
K			+
Q		+	+

<sup>a</sup> Q-3-Gl=quercetin-3-O-glucoside; Q-3-Rut=quercetin-3-O-rutinoside; K-3-Gl=kaempferol-3-O-glucoside; K-3-Rut=kaempferol-3-O-rutinoside; K=kaempferol; Q=quercetin.

3MM, using TBA (tert-butanol–acetic acid–water 3:1:1) and AcOH 15% (acetic acid 15%) as developing solvents. Structures were assigned on the basis of chromatographic behaviour by comparison with authentic samples on TLC (cellulose/acetic acid 40%; polyamide/chloroform: methanol: butanone: acetylacetone 9:4:2:1), color reactions with NA (Naturstoffereagenz), acid hydrolysis, standard ultraviolet spectrophotometric methods (Mabry et al., 1970; Markham, 1982).

#### 4. Chemotaxonomic significance

The results of leaves and flowers flavonoids are presented in Table 1. The flavonoid patterns in the three species of *Chuquiraga* are similar. Kaempferol, quercetin and their 3-O-glucosides and 3-O-rutinosides were identified. They are comparable with those previously isolated, by us from other argentine species belonging to *Chuquiraga*, e.g., *Chuquiraga calchaquina*, *C. longiflora*, (Mendiondo et al., 1997); *C. avellanadae*, *C. erinacea*, *C. erinacea subsp. hystrix*, *C. incana*, *C. oppositifolia*, *C. rosulata* (Mendiondo et al., 2000). The predominance of these compounds shows the homogeneity of the genus in flavonoid chemistry.

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