

FLAVONOIDS FROM NEEDLES OF *LARIX LEPTOLEPIS**

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Plant Larix leptolepis (Sieb et Zucc) Gord Voucher specimen No GNI, Institute for Systematic Botany, University Utrecht Source State Forest Service, Austerlitz, The Netherlands, August 1970 Previous work on leaves *L leptolepis* (*L kaempferi*) kaempferol-3-glucoside,¹ hydroxy aromatic acids,² phenolic glucosides³ and glucaric acid⁴ *L sibirica* flavonoids⁵⁻⁷ and phenolic glucosides⁸ *L laricina* flavonoids,^{9 10} phenolic glucosides¹¹ and aldehydes¹⁰ *L decidua* organic acids⁴ and *O*-methylinositols¹² *L potanini* glucaric acid⁴ *L dahurica* (*L gmelinii*) glucaric acid⁴

Present work Freeze-dried needles were extracted with light petrol CHCl_3 , CHCl_3 -MeOH 2%, CHCl_3 -MeOH 10%. The latter extract was concentrated to dryness and separated by repeated banding on paper and silica TL, or by NaHCO_3 -BuOH partition followed by Sephadex LH20 and polyamide column chromatography and by banding on paper 2-D PC showed at least 18 flavonoids of which many occur in trace amounts only Eight flavonoids were isolated (in solution) and identified by chromatographic and UV spectral data of both the original and acid hydrolysis/degradation¹³ products as the 3-glucosides of kaempferol, quercetin, isorhamnetin and syringetin, the 3-rhamnoglucoside (or glucorhamnoside) of the latter two, vitexin and its (glucosyl) glucoside (8-diglucosylapigenin) 8-(Xylosylglucosyl)-apigenin was present as well but has not been purified from the glucosyl derivative A tenth compound was identical with the partly identified 3'-substituted myricetin-3-glucoside from *Larix laricina* needles¹⁰ Apart from the flavonoids, one of the fractions contained shikimic acid

The diglycosides of isorhamnetin and syringetin yielded rhamnose and glucose on acid hydrolysis H_2O_2 oxidation according to Chandler and Harper¹⁴ gave a disaccharide with the same R_f as that obtained by oxidation of rutin (BuOH-pyridine- H_2O , 10 3 3) Thus, rutinoides seem indicated

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* Part VII in the series "Phenolics from *Larix* needles" For Part VI see NIEMANN, G J and NUYTEN, S T M (1973) *Acta Bot Neerl* 22, in press

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