

## Identification of a Dicafeoylquinic Acid Isomer from *Arctium lappa* with a Potent Anti-Ulcer Activity

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**Introduction:** *Arctium lappa* L. (Asteraceae), popularly known as “burdock” or “bardana” is considered a medicinal plant, brought from Asia and acclimated worldwide, including Brazil. *A. lappa* is an important detoxifying herb in both Chinese and Western natural medicines. Therapeutic applications are attributed to different parts of the plant, such as roots, leaves, seeds and fruits, being used in folk medicine for treatment of intoxications, throat infections, boils, rashes and other chronic skin disorders. **Objectives:** Investigate the potential gastroprotective effects of leaves from *A. lappa*; Identification of the active compounds. **Material and Methods:** Leaves of *Arctium lappa* were extracted by hot water and, then, fractionated by ethanol precipitation, followed liquid/liquid partition in ethyl acetate/*n*-butanol/water. The fractions were analyzed by liquid chromatography-mass spectrometry (LC-MS) and nuclear magnetic resonance (NMR). In order to investigate the protection on gastric mucosa against ulcer, rats were treated with fractions from leaves prior to ethanol-induced ulcers. **Results and Discussion:** *A. lappa* contains several mono- and dicafeoylquinic acids, as evaluated by LC-MS. The original fraction obtained as ethanol soluble fraction from hot aqueous extract was able to protect the gastric mucosa, and this effect was retained in the ethyl acetate fraction. The main compound in this fraction was isolated and chemically characterized by NMR and LC-MS, assisted by isopropylidene derivatization which gave rise a mass increment of 40 units, allowing differentiating from other isomers. **Conclusion:** The active compound was isolated, and the structure elucidated. The native structure has appeared at  $m/z$  515.119 [M-H]<sup>-</sup> with many isomers. The structure was confirmed by isopropylidenation, being shifted to  $m/z$  555.151, confirming as 1,3-O-dicafeoylquinic acid. This molecule had an ED<sub>50</sub> of 57  $\mu\text{g kg}^{-1}$  on the protection against gastric ulcer, lesser than the therapeutic concentration of omeprazole (40  $\text{mg kg}^{-1}$ ).

**Keywords:** *Arctium lappa*, dicafeoylquinic acid, Anti-Ulcer.

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