Anthelminthic evaluation of extracts and natural compounds from *Pterogyne nitens* (Fabaceae) against nematodes of veterinary interest

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The use of plant secondary metabolites with potential anthelmintics (AH) activity against gastrointestinal nematodes (GINs) is an alternative solution to chemical treatments is nowadays a necessity to achieve more sustainable control the parasitism [3], since they could be used either as phytotherapeutic material as nutraceuticals [4].

Pterogyne nitens Tul. (Fabaceae) is a Brazilian tree. Chemically, it presents a variety of bioactive metabolites including guanidine alkaloids, flavonoids, phenolic acids, triterpenes, and sterols, which have demonstrated several bioactivities [5–8]. Studies in traditional medicine applications, it is used to treat *Ascaris lumbricoides* [9] and scabies infections (*Sarcoptes scabiei*) [10]. In this field, the aim of this study was evaluated the anthelmintic activity of extracts and natural compounds from *P. nitens* against *Haemonchus contortus* (Hc) and *Trichostrongylus colubriformis* (Tc).

Sorbifolin (**1**), pedalitin (**2**), quercetin (**3**), rutin (**4**), guanidine alkaloid (**5**), caffeic (**6**), ferulic (**7**), gallic acid (**8**) and ourateacatechin (**9**) were isolated from leaves, fruits, stem barks and flowers ethanolic extracts by successive chromatography columns. Extracts and natural compounds were tested against L3 larvae by the Larval Exsheathment Inhibition Assay, performed as described by [11]. Statistical analyses were performed using SPSS IBM Statistics® v. 20, through probit analysis, for the determination of EC_{50}.

All the extracts were active against L3 exsheathment against both GIN species (EC_{50} ranging between 78.6 to 274.6 µg/ml). Natural compounds presented EC_{50} ranging between 1.6 to 132.4 µg/ml against Hc and 7.1 to 64.0 µg/ml against Tc. Quercetin presented the best inhibition activity for both nematodes, with EC_{50} = 1.6 µg/ml for Hc, 7.1 µg/ml for Tc. Pedalitin showed EC_{50} = 24 and 26.8 µg/ml against Hc and Tc, respectively. Among the acids, the gallic acid demonstrated a good activity with 28.1 µg/ml for Hc and 26.9 µg/ml for Tc. The guanidine alkaloid showed as a potent alternative besides phenolic compounds with EC_{50} 34.2 and 45 µg/ml to Hc and Tc, respectively. These data are the first description for some natural compounds *in vitro* anthelmintic activities. Furthermore, the results may be a sustainable template for discovery and design of novel anthelmintic agents.

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