EFFECT OF CONDENSED TANNINS IN THE GAS PRODUCTION *IN VITRO*

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Introduction

With the growing concern about global warming and global climate change, on which the cattle farm has an important role because of the production of so-called "greenhouse-gases", like methane, it is very important to find ways to reduce the production of such gases, including the use of additives such as condensed tannins from Quebracho.
Tannins are natural constituents of the pastures, with effects on the ruminal fermentation.

Material and Methods

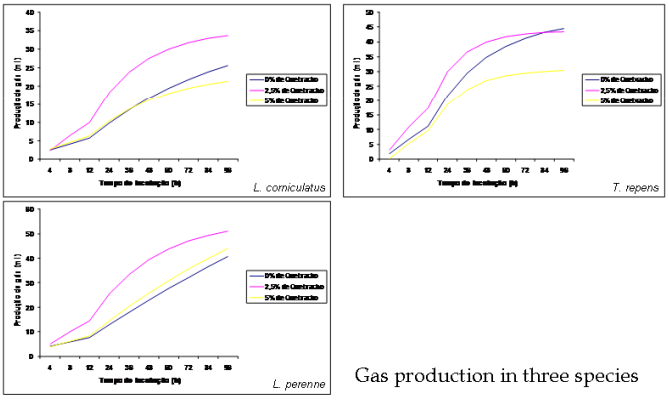
In this assay the total content in tannins was determined in 3 species by the method of radial diffusion assay: *Lotus corniculatus*, *Lollium perenne* and *Trifolium repens*.
The method of acid-butanol was used for quantification of CT on the 3 species. Quebracho was used as standard.
To determine the effect of the TC on the ruminal fermentation, assays of gas production *in vitro* were carried through, with inclusion of CT proceeding from the Quebracho in doses of 0, 2.5 and 5% DM.

Equivalents of tannic acid in three Azorean pasturage species (% DM) determined by the Hagerman (1987) method of radial diffusion.

Specie	equivalents of tannic acid (d^2)
L. corniculatus	1,07
T. repens	0,81
L.perenne	0

The concentration of CT in the three species

Sample	Concentration %DM	Absorbance (550 nm)
L. corniculatus	2,73	1,1893
T. repens	5,51	2,3937
L.perenne	0	0



Gas production in three species

Results

We verified, in comparison with standard samples tannic acid, that tannins exist in the flower of *T. repens* (0.81 equivalents of tannic acid) and in *L. corniculatus* (1.07 equivalents of tannic acid) but not in *L. perenne* (0 equivalents of tannic acid).

The concentration of tannins in the 3 species was: 0.34 mg/ml for *T. repens*; 0.83 mg/ml for *L. corniculatus* and 0 mg/ml for *L.perenne*.

A significant reduction of gas production was verified for doses of 5% of CT, this expresses a reduction of methane emission to the atmosphere and an increase of exploitation of the protein effect among other positive effects on ruminants.

Conclusions

The addition of Quebracho to fibrous food, on *in vitro* assay for gas production, diminishes the fermentation tax, diminishing the amount of produced gas, diminishing the extension of degradation and the concentration of the resultant products of this degradation (ammonia and volatile fat acid).