Is there a plausible alternative to common anthelmintics, which are becoming less effective to fight against parasites?

HYPOTHESIS

Tannins have suppression effects on parasites in herbivores

INTRODUCTION

Secondary metabolites perform non-essential functions but they can promote adaptation to unfavourable environments and under stressful conditions, such as high temperatures, light or water stress and poor soil quality, which regulate the phenological development of the plant, thus increasing the synthesis of tannins.

TANNINS

Present in trees, shrubs and herbaceous plants. They are a heterogeneous group of phenolic compounds with high molecular weight which are able to bind proteins, polysaccharides, alkaloids, nucleic acids and some minerals.

HYDROLYSABLE TANNINS (HT)

Formed by carbonic core (D-glucose) linked to phenolic groups such as Gallic or Ellagic acid.

These compounds metabolized by Eubacterium oxideoxidens, Streptococcus bovis, Syntrophococcus succinmutans and Coprococcus sop form pyrogallol, which is toxic for herbivores.

CONDENSED TANNINS (CT)

Non-branched polymers of flavonoids such as 3-flavanols (catechin or epicatechin), precursors of procyandin and epigallocatechina, which can condense to form prodelffinindas.

PATHOLOGY OF NEMATODES IN HERBIVORES

Reduction of food intake, absorption and retention of minerals (especially phosphorus), causing significant losses in protein absorption and hormonal changes that disrupt the normal functioning of the digestive system.

CONCLUSIONS

CT are a useful potential alternative anthelmintic in herbivores considering the recent appearance of resistance to conventional anthelmintics.

Animals treated with condensed tannins reduce the population of nematodes and their reproduction. This effect is produced by acting on the cuticle and hypodermis larvae, as well as the effect on microvilli, causing intestinal damage in these parasites.

SELECTED BIBLIOGRAPHY

