TANNINIFEROUS LEGUME FORAGES USED AS NUTRACEUTICALS: A NOVEL APPROACH TO CONTROL PARASITIC NEMATODES OF THE GASTROINTESTINAL TRACT OF RUMINANTS.

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According to FAO; infections of the gastrointestinal tract with parasitic nematodes (GINs) represent a major pathological threat associated with the outdoor production of various livestock species, in particular ruminants. Up to now, the control of these parasitic diseases essentially relied on the repeated use of commercial, synthetic anthelmintic (AHs) drugs.. However, resistance to these AHs is nowadays widespread in worm populations, including the occurrence of multiresistant strains. Therefore, there is a strong impetus to seek for alternative or complementary solutions to chemical AHs. Recent results indicated that bioactive tanniniferous plants represent a valuable option as an alternative to these chemical drugs to control GINs. Results obtained from a wide range of *in vitro* assays targeting the different stages of the nematode life cycle of the main nematode species have confirmed the activity of extracts obtained from various tannin-rich plants, in particular from Legume forages. These effects on eggs, third-stage infective larvae (L3) and adult worms were also confirmed in *in vivo* studies. Last, by using sainfoin (*Onobrychis viciifoliae)* as a model of a nutraceutical, tannin-rich forage legume, the mechanisms of action began to be analysed either by examining the functional and ultrastructural changes provoked to the nematode larvae or adult worms or by identifying the natural, biochemical compounds involved; The current results indicate that not only proanthocyanidins (condensed tannins) are involved in the activity but also some other flavonoids, from the flavanols and the flavonols. This analysis/identification of the natural compounds responsible for the AH activity will help for a more pertinent use of tannin-rich fodders as nutraceuticals in farm conditions