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SMARTWASTE: Reusing wastes and by-products of agricultural industry to develop bioactive livestock feeds'

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Abstract

Infectious diseases of the gut, caused by various pathogens such as gastrointestinal parasites, are one of the most serious problems in livestock, causing reduced productivity, ailing health and necessitating heavy chemical drug use. Controlling residues of these medicines in food is highly important for consumer safety, while there has been a continuous trend towards the production and consumption of "clean" food. This concept involves limited use of drugs while reducing the impact of food production on the environment and considering animal welfare. The potential for natural dietary components from recycled biowastes against pathogens is an attractive alternative to the use of synthetic drugs. A range of plants and crops are considered bioactive due to their content of chemical compounds, especially the so-called plant secondary metabolites (PSMs). Secondary metabolites, such as tannins, are thought to protect plants against herbivory or predation by insects and have long been studied for their putative medicinal properties. The exploitation of plant secondary metabolites containing natural resources can be considered as an ecologically friendly option because, they reduce synthetic chemical use. For this, our research is focused on exploiting the bioactivity of by-products derived from olive processing, wineries, pomegranate industry against gastrointestinal nematodes and coccidia of small ruminants and rabbits. The above agricultural industries have been selected because they represent an important economic sector in Greece and Mediterranean region and a major source of industrial wastes/by-products. The final goal is the development of functional livestock feeds to i) improve the efficiency of feed utilization, ii) increase animal productivity by protecting gut health iii) reduce the environmental footprint of livestock farming and iv) support circular economy.

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