Enhancing the Antioxidant Characteristics of Animal Feed by Using the Natural Components

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Along with the rapid growth of the world population, the demand for food, including animal feed, has increased. One of the challenges is to preserve food and animal feed with minimizing the loss of nutrients and maintaining the product's safety and original appearance in the long term. Nowadays, one of the challenges is the management of oxidative stress, which has a negative impact on living organisms. Oxidative stress and excess of free radicals in both, humans and animals, cause cell and/or tissue damage, chronic diseases such as cancer, diabetes, heart disease and so on.

Nowadays, not only the health of people, but also the health and well-being of animals and plants get a lot of attention. Recently, there has been significant attention on animal feed due to the negative health effects of synthetic antioxidants used in animal feed. Consequently, there is an ongoing pursuit to discover natural alternatives to replace synthetic antioxidants.

The aim of our research is to study the potential of natural extracts obtained from the waste of production of Georgian grape seed oil to enhance the antioxidant properties of animal feed.

The waste of grape seed oil production used in our study was collected from the local winery. Grape seeds are known to contain polyphenols, which have one of the highest antioxidant activity. We employed two different solvents in the study: ethyl acetate and ethanol-water solution. The comparative analysis of these solvents provided valuable insights about which solvent is more effective in terms of fraction yield and polyphenol extraction.

The efficiency of other commercial antioxidants were compared with the grape seed extract both in vitro and in vivo. Specifically, extracts obtained from the oilcake were incorporated into a dog food ration and the effect on the antioxidant properties of the food was evaluated. Studies have revealed a high content of total polyphenols and flavonoids in the extracts and at the same time, a high antioxidant activity. The addition of grape seed extracts to animal feed significantly increased the antioxidant properties of the feed. The results indicate that the addition of residual extract of grape seed oil production significantly increased the antioxidant capacity of the animal feed. The extract revealed high levels of total phenolic compounds and flavonoids, known for their strong antioxidant properties. The use of grape seed oil production residues as a natural antioxidant source in animal feed holds great promise both in the livestock industry and in the improvement of pet food. By incorporating these residues, not only can the antioxidant properties of animal feed be increased, but the dependence on synthetic additives can be reduced, which will increase the growing demand for natural feed additives.

Based on the research, we can say that the waste from the Georgian grape seed oil production has the potential to become an effective source of natural antioxidants for improving animal feed. This will reduce the dependence on synthetic antioxidants and optimize the overall health of the animals.