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Nutritive value of distillers dried grains with solubles from barley, corn and wheat for growing rabbits

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Highlights

1. Distillers dried grains with solubles (DDGS), the most important by-products of the bioethanol manufacture industry (0.3 tones per ton processed cereal), are mainly used for animal nutrition.
2. Literature about chemical composition and nutritive value of corn DDGS is extensive. However, the available knowledge about DDGS from other cereal grains, such as wheat and especially barley and sorghum, is more limited.
3. Considering the fibrous nature of DDGS and that their availability has exponentially increased in the last decade, DDGS inclusion in rabbit diets could have been promoted.
4. This study has been addressed to characterize the chemical composition of the barley, corn and wheat DDGS available in the Iberian Peninsula, as well as their nutritive value for growing rabbits.
5. DDGS could be considered as interesting raw materials, due to their high content of digestible protein and energy, comparable to other sources of protein frequently used in rabbit nutrition. Their high fibre content (on av. 570 g of total fibre kg-1 DM) makes this by-product especially interesting for rabbit nutrition compared to other monogastric species.
6. The inclusion of corn and wheat DDGS in rabbit diets did not negatively affect the digestibility of the main amino acids, as has been observed in other species when DDGS were heat-damaged.
7. However, their protein could be considered as relatively poor in the most limiting amino acids for rabbit diets, and a supplementation of synthetic amino acids could perhaps be required if DDGS are included at high level.

Abstract

Due to their fibrous nature, distillers dried grains with solubles (DDGS) from the bioethanol industry could be considered an interesting feedstuff for rabbit nutrition. To characterize the DDGS available in the Iberian Peninsula the chemical, amino acid and fatty acid composition of eight DDGS batches (2, 2 and 4 from barley, corn and wheat grains, respectively) was performed. Five diets were formulated to determine the nutritive value of DDGS in growing