

Effects of the brewers' spent grain on milk quality of dairy cows reared on the Algerian pastures

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Each year, considerable quantities of agro-industrial co-products are rejected as is by the food industry (253 tons of brewery grains). However, these discharges present a considerable potential energy source for animal feed. In this contribution, we evaluated the effect of two Algerian feeding systems consisting of three main natural sources: green grass, concentrate and brewers' grains on the biochemical and nutritional characteristics of cow milk.

According to the type of diet, a significant effect ($p < 0.05$) was found in all physicochemical parameters, except for density. Acidity was significant in the milk of cows fed with spent grain (21.66°D).

The results obtained show variations in the composition of milk depending on the type of diet. The R1 diet induces the highest levels of total nitrogen matter (TNM) with 27.69% of DM and total lipids (TL) with 06.95% of DM, this being related to the higher energy intake provided by the brewers' grains compared to the R2 diet. The introduction of brewery dregs stimulated milk production and induced significant variations in milk composition. Similarly, statistical analysis showed significant differences ($p < 0.05$) and predominant for the group of cows fed the R1 diet compared to the group fed concentrate and pasture (R2), in particular total dry matter (69.33% vs. 53.67%) and fat free dry matter (41.33% vs. 18.67%), respectively. The results reported on the protein analysis indicate significant ($p < 0.05$) and predominant differences for milk from cows fed the R1 diet compared to the R2 (3.20% vs. 2.60%, $p < 0.05$). The results showed more fat in the milk from cows fed with spent grain compared to the milk from cows fed with pasture and concentrate in their rations (3.58% vs. 3.47), respectively.

The use of spent grain is very interesting for the breeding of dairy cattle and allows to obtain a milk recommended by nutritionists and of an attractive sensory quality.

Keywords: Brewer's grains, Jdiouia, milk, total lipids, quality, cows

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References

- [1] M. Boessinger, H. Hug, U. Wyss. Brewer's grains, an interesting protein feed." *Revue intéressante.*"Revue UFA.2005, 4(05): 8401.
- [2] E. Aregheore, S. Ting. "A note on evaluation of wet and dry brewers' grains in concentrate supplements for growing Anglo-Nubian x Fijilocal goats in the tropical environment of Samoa." *Journal of Animal and Feed Sciences.*2002, 11(4): 565-576.
- [3] K. Benlahcen, F. Mouloudi, M. Kihal. "Study of the microbiological and physicochemical quality of raw milk from cows exposed to environmental pollutants in the region of West Algeria." *International Journal of Environmental Engineering Science and Technology Research.*2013,1(9): 229-240.