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Impact of partial replacement of conventional concentrate with corn gluten feed on the sensory quality of coalho cheese.

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Dairy farming in the northeastern region of Brazil is characterized by a continuous pursuit of technological advancements aimed at maximizing resources and achieving results that ensure the economic viability of the activity. In this perspective, the objective was to evaluate the effects of replacing conventional concentrate (soybean meal, corn, and wheat) with corn gluten feed (CGF) in diets containing forage cactus (Opuntia stricta Haw.) on the sensory attributes of coalho cheese. The study was conducted at the experimental station of the Pernambuco Agricultural Research Company and the Milk Quality Laboratory of the Animal Science Department at the Federal Rural University of Pernambuco. Eight Holstein cows in the 70-90 day lactation period, with an average body weight of 500 kg and daily milk production of 20 kg, were used in a double Latin square design (4x4) with the following dietary treatments: 100% conventional concentrate (CC); 66% CC + 33% corn gluten feed (CGF); 33% CC + 66% CGF; 100% CGF. Milk samples were collected for pasteurization, cheese-making by treatment and sensory evaluation. Statistical analysis used the non-parametric Friedman test with a significance level of 5%. In the sensory analysis, evaluators assessed attributes such as overall appearance, color, strange odor, texture, moisture, eyes, characteristic flavor, acidic flavor and off-flavor of the matured coalho cheese on the tenth day. Also, was used an unstructured hedonic scale represented by a continuous 10 cm line. Similarly, the purchase intent and preference ranking tests were conducted using increasing point scales from one to four and one to five, respectively. Sensory evaluations were performed in four periods, with each session consisting of two rounds, totaling eight replpications per evaluator in each session. Attributes that differed significantly ($P<0.05$) between treatments were off-flavor and moisture; the former was attributed to the bitter taste probably caused by corn gluten feed in dairy products, with a significant difference ($P<0.05$) observed in treatments containing 66% and 100% CGF, while the latter, corresponding to the juicy character of the product, was lowest in the treatment without substitution (5.34%) compared to the other treatments (6.34%, 5.96% and 5.76%), suggesting potential water retention due to the fat content in cheeses from diets with some level of agro-industrial residue substitution. Other attributes didn't differ significantly ($P>0.05$). The highest purchase intent was observed for the 33% substitution treatment ($P<0.0001$). Therefore, there is public acceptance of coalho cheese with 33% corn gluten feed associated with forage cactus in the diets of dairy cows improving the market viability.

Keywords: Energy source, residue, agro-industry, dairy.

The study was approved by the Animal Experimentation Ethics Committee (CEUA-UFRPE) and the Research Ethics Committee Involving Human Beings on the Brazil Platform.