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## CHEMICAL, PHYSICAL AND SENSORY PROPERTIES OF PDO MOZZARELLA CHEESE PRODUCED FROM MILK OF BUFFALOES FED WITH HYDROPONIC FORAGE

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The development of alternative techniques for forage production is becoming increasingly crucial in the Mediterranean, due to the resource scarcity, climate change and population growth. Maize cropping system is highly demanding for water and non-renewable sources, and its economic convenience is decreasing due to the increase in production input costs. Recently, hydroponic cultivation system has emerged as a new soilless cultivation method for growing quality-constant fresh forage, offering advantages such as better environmental sustainability, reduced labour costs, lower resource and space requirements. Moreover, hydroponic forage can improve the nutritional composition of dairy products. The aim of this study was to investigate the sensory properties of PDO mozzarella cheese produced with milk from buffaloes fed with hydroponic barley forage (FORIDRO Project: UNINA\_CdA\_75\_2021\_FRA\_LINEA\_B). Thirty-three buffaloes (Italian Mediterranean breed) were divided into three groups. The control group (C) was fed maize silage and concentrate (60:40). In the first experimental group maize silage was replaced at 50% (LH) by hydroponic barley forage, while in the second group at 100% (HH). Mozzarella samples, produced in three differentiated cheese-making trials, were analysed by sensory (triangle test and QDA), texture profile, colour and SPME-GC/MS analysis. Triangle tests showed a difference in each of the three cheesemaking periods between C and HH. These differences were attributed to the sensory texture descriptor "hardness", which achieved a higher intensity in the control sample, while no differences in the intensity of the olfactory and taste descriptors were found. The instrumental texture corroborated the results obtained from the QDA. Colour did not differ between samples. C sample had a greater abundance of volatile fatty acids, while HH had a higher amount of 1-octen-3-ol. In conclusion, the inclusion of hydroponic forage in lactating buffalo diet determines slight differences in the sensory properties of the PDO buffalo mozzarella cheese while improving its nutritional characteristics.