

# EFFECT OF DIFFERENT PASTEURIZATION CONDITIONS AND STORAGE PERIOD ON THE LIPID OXIDATION AND ANTIOXIDANT CAPACITY OF GOAT AND BUFFALO MILK

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At present, most of the pasteurized goat milk available in the market are prepared using manual steam boilers. This study was conducted as a part of a study carried out in determining the optimum pasteurization conditions and the storage period. This study describes the lipid oxidation and the antioxidant activity of pasteurized milk samples with respect to different storage periods.

Lipids in food become rancid as a result of oxidation, and this oxidative rancidity is a major cause of food deterioration. The acceptability of a food product depends on the extent to which this deterioration has occurred. TBARS (2-thiobarbituric acid reactive substances) test was used to determine the oxidative rancidity of milk samples. Malonaldehyde was the end product of this reaction and results were expressed as the amount of malonaldehyde (mg) per kg of milk sample by reference to a standard curve to express the amount of rancidity.

The antioxidant capacity of milk samples was determined using DPPH (2,2-diphenyl-1-picrylhydrazyl) test. Extent of decolourization of DPPH was measured using a UV-visible spectrophotometer with respect to ascorbic acid standard. These two tests were performed in the 0<sup>th</sup> week, 2<sup>nd</sup> week, 3<sup>rd</sup> week, and the 4<sup>th</sup> week immediately after pasteurization with respect to three different temperatures and time periods, they are, 72 °C, and 81 °C for 15 seconds, 25 seconds and 45 seconds respectively. Results revealed there was no significant difference in antioxidant activity in goat and buffalo milk pasteurized at varying time-temperature combinations and storage periods compared to fresh samples. But the oxidative rancidity was increased in goat milk at 81 °C in different storage periods. This value was decreased in buffalo milk at 72 °C for 25 seconds and at 81 °C for 45 seconds.

Key words: TBARS test, DPPH test, Oxidative rancidity, Antioxidant capacity.

