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The effect of bentonite powder on goat pelt, crust and leather characteristics

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Abstract

The common salt (sodium chloride) curing system is the most popular animal skin preservation method adopted globally. About 50% w/w NaCl preserves skin efficiently due to its remarkable dehydrating and bacteriostatic properties. The ill-effects of sodium chloride on the environment and eco-system need no emphasis. Therefore various investigation which, are more eco-friendly for the preservation of goat skins, have been involved in alternative salt curing systems. Bentonite is an industrial mineral, are produced from a layered aluminum and silicate mineral. The adsorption capacity of bentonite is considerable. This study was conducted to determine the effect of bentonite powder with or without sodium chloride on goat skin leather characteristics. A general mixed linear model including of treatments and two directions of cuts (parallel and perpendicular to the backbone) was used to analyze the data and measure of physical and mechanic leather characteristics. There were significant different ($P<0.05$) among treatments for tensile strength. The skin were preserved by a less– salt with different percentage of sodium and calcium bentonite) and salt-less (sodium and calcium bentonite only) had higher tensile strength and lower percentage extension as compared with conventional salt curing (control group). Leather from control group have lower single edge tear load with different treatments but there were not significantly. The lowest double edge tear load related to leather from control group ($P<0.05$). The tensile strength ($P<0.001$) and double edge tear load ($P<0.05$) of parallel leather samples were significantly higher and percentage extension was lower ($P<0.05$) than for the perpendicular to backbone samples. While single leather from two direction were not significantly for single edge traits. The results show that the bentonite preservation techniques were as efficient as salt curing or better for the preservation of raw goat skins.

Keywords: Dehydrating agent, Goat skins, Leather physical and mechanical characteristics, Skin preservation