BAGASSE FOR GOATSKIN PRESERVATION TO REDUCE CHLORIDE IN TANNERY WASTEWATER

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Animal skin, byproduct from meat industry is the basic raw material for the tanning industry. After flaying, instantly animal skin needs to start tanning operation otherwise bacteria cause deterioration. It is near about impossible to start tanning immediately because there is a huge time gap between flaying to reaching at tannery. In the conventional preservation method 40-50% (w/w) sodium chloride (NaCl) is used which contributes more than 40% of total dissolved solids (TDS) and 55% of chlorides in the composite tannery effluent (Covington, 2011).

In this work, laboratory experiment was conducted to preserve the goatskin with bagasse in combination lower salt in reducing TDS and chloride of the tannery wastewater. The process was observed for 30 days periodically examining moisture content, hair slip, odor, and thermal stability in comparison to the conventional method.

Freshly flayed goatskin with weight 1 kg was cut into six pieces at the size of 30 cm × 30 cm. Various percentage of bagasse (ground) with minimal amount salt was mixed and apply on the flesh side based on the raw goatskin weight (w/w) and assessed continually (fresh, 1st, 3rd, 7th, 14th, 22rd and 30th day) for the changes of odor, hair slip, moisture content and thermal stability.

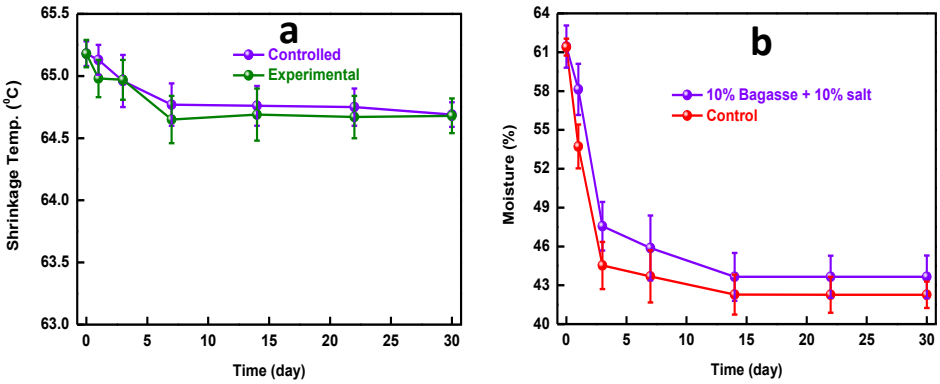

Figure 1. Comparison the shrinkage temperature *a)* and moisture content *b)*

Based on laboratory experiment, preservation with 10% bagasse + 10% NaCl was flexible, no odor, and intact. Fig 1 depicts the shrinkage temperature and moisture content of experimental goatskin in comparison with the conventional method for the period of 30 days. There is no significant difference of shrinkage temperature (Fig. 1a) between the experimental and control. In case of moisture content, same behavior was observed both in control and experimental (Fig. 1b) methods. There were no hair slip or odor of the goatskin preserved of the proposed experimental method. It is obvious that combination of 10% bagasse and 10% NaCl preserves the goatskin for 30 days. The preservation method reduces TDS and chloride in soaking operation by 56% and 58%, respectively. The method could be a viable option to preserve the goatskin, which could reduce the pollution load in the tannery wastewater.