

**COMPARISON OF PROPERTIES OF LEATHER MADE USING  
PLANT OIL AND FISH OIL AS FATLIQUORS**

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By

**DASSANAYAKA MUDIYANSELAGE HANSIKA ERANDI  
DUNUKEDENIYA**

**Animal Science Degree Programme  
Faculty of Animal Science and Export Agriculture  
Uva Wellassa University  
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## ABSTRACT

In leather manufacturing process, fatliquoring is a critical point since it increases the softness, fullness, tensile strength and gives lubrication property to the leather. Therefore, this study was formulated to select the best method among five treatments and to select the best fatliquoring agent among castor oil and gingerly oil to replace fish oil. Therefore, castor oil and gingerly oil were selected based on their viscosity values and the iodine values as fatliquoring agents where fish oil was used as the control. Two sulfation levels (10 % and 20 %), from each castor and gingerly oil was taken. The wet blue of cow hides were selected which used for manufacturing of Cow Tung Lining leather. 15 cow hide pieces with 1ft<sup>2</sup> surface area were selected to conduct the research. Three replicates were assigned for each treatment. All treatments were undergone retanning process according to the relevant chemical recipe. After the retanning process, the hide lot was piled up for a day for water drainage and samples were dried using toggle drying. Then the lot was staked by using staking machine for the mechanical massage of the leather. Finally it was finished by applying a color and wax. Then, the tensile strength and distension of the final leather were measured. In addition to that sensory evaluation was conducted to evaluate the softness, fullness, loose grain, oiliness on leather surface and the overall acceptability of the final leather using 10 trained panelists. The sensory data were analyzed using non-parametric procedure, according to the Friedman test using Minitab 16 software programme. Complete Randomized Design (CRD) was conducted and obtained data were analyzed using one way analysis of variance (ANOVA) using the General Linear Model (GLM) procedure with 95 % significant level.

However, the results indicate that gingerly oil with 20 % sulfation level (according to the weight of the oil) was the best because it had the highest distension, tensile strength and overall acceptability in sensory evaluation. Therefore, castor oil with 10% sulfation level (according to the weight of the oil) was not an effective fatliquoring method. However, the leather quality of made using fish oil was less than gingerly oil with 20 % sulfation level (according to the weight of the oil).

Key words: Castor oil, Fatliquoring, Gingerly oil