

DEDICATION

To my extended family

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ACKNOWLEDGMENTS

.I wish to thank Allah for enabling me to finish my research work

I would like to thank **Dr. Grashi Abdelaa Gasmelssed.** For his valuable guidance, scholarly suggestions, and constant encouragement throughout .this research work

I take this opportunity to thank the Center of Leather and Industrial . Research which sponsored this research

I am grateful to my husband for his patience and endurance while .working in this research

And lastly, my sincere thanks to my family for support and encouragement. Without their blessings and good wishes, I would not be . to finish this work

ABSTACT

This study was undertaken to utilize Taleh bark (*Acacia Seyal* Bark) as a retanning material for production of upper and garment leathers. The Talh bark was collected from Gezera area and analysed for tannins, nontannins and solubles. The tannins content of Taleh bark was found to be 20.4% and therefore it was promising and would successfully be used as retanning and tanning materials.

The Taleh bark was crushed into small particles and leached at various conditions of temperature, solvent : solid ratio, degree of mixing and time of extraction.

A two - level factorial experiments were designed and the level of the above factors were determined according to the statistical analysis.

It was found that a solvent solid ratio of 6:1, speed of agitation of 250 rpm, temperature of 30°C and time 2 hours were the optimum conditions. The extract produced was concentrated in triple – effect evaporator which was designed here in this work with the following dimensions : Tube outside diameter = 0.0254m, Tube inside diameter = 0.0186m, Tube

length = 7.0m, Heating surface area = 70m^2 , Number of tubes = 125tubes, Pitch = 0.138m, Tube bundle diameter = 0.358m and Shell diameter = 0.448 and steam economy of 4.3

The thick liquor from the evaporator was spray –dried and the powder that produced was analysed for tannins content which was found to be 36.2%. The powder was used for retannag of upper and garment leather. The physical properties were determined and compared quite well with the standard specifications, the chemical analysis was in agreement with .chemical standard

In conclusion it is clear that Sudan can produce tannins extract from Taleh bark which can be used for pretannage, tannage and retannage. It is recommended that the Taleh bark and similar acacia seyal can be analysed and leached to give tannins powder extract to replace imported .Mimosa extract

بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ

ARABIC ABSTRACT

ملخص الاطروحه

تهدف هذه الدراسة إلى استخدام لحاء أشجار الطلح كمادة دباغة لإنتاج جلود الوجه والملابس بجمع لحاء أشجار الطلح من منطقة الجزيرة وتم تحليلها لتحديد نسبة المواد الدابغة والمواد غير الدابغة والمواد الكلية الذائبة. وجد أن نسبة المادة الدابغة في لحاء أشجار الطلح تعادل 20.4% وعليه يمكن اعتبارها من مواد الدباغة وإعادة الدباغة الناجدة .

تم طحن الطلح إلى جزيئات صغيرة وأستخلصت المادة الدابغة تحت عوامل متباينة كدرجة الحرارة ومعدل المذيب إلى المادة الصلبة وسرعة التحريك وزمن الاستخلاص. صُمم تحليل مضروبي على مستويين وحددت العوامل السابقة وفقاً لتحليل إحصائي فكانت كما يلي:

زمن الاستخلاص الأمثل يعادل ساعتين , وان نسبة المذيب للمادة الصلبة الأفضل تعادل 1:6 كما وجد إن درجة الحرارة تعادل 30م, وان سرعة الخلاط المثلى تعادل 250دورة في الدقيقة. كما تم تركيز منتج الاستخلاص من خلال مبخر ثلاثي صُمم

بهذه الدراسة فكانت أبعاده كالتالي :- القطر الداخلي للأنبوب يعادل 0.0186 متر والقطر الخارجي يعادل 0.0254 متر بينما طول الأنبوب يعادل 7 متر ومساحة السطح 70 متر مربعاً كما تعادل الخطوة 0.0318 متر و قطر الحزمة يعادل 0.385 متر والقطر الحاوي للحزمة يعادل 0.448. ووجد أن اقتصاد البخار يعادل 4,3.

جُفِّف السائل الثقيل المتحصل عليه من المبخر الثلاثي وأجريت التحاليل على المنتج لتحديد محتوى المادة الداغية في المسحوق فكانت تعادل 36.2 % .أستخدم المسحوق في إعادة دباغة جلود الوجه والملابس وحُدِّدت الخصائص الفيزيائية للجلود المدبوغة فكانت جيدة مقارنة مع المعايير. كما إن مواصفات التحاليل الكيميائية كانت مطابقة للمعايير الكيميائية.

أوضحت البيانات الختامية أن السودان يمكنه أن ينتج مستخلص دابغ من لحاء أشجار الطلح يمكن استخدامه في عمليات الدباغة الأولية وعمليات الدباغة وإعادة الدباغة. نوصي بان لحاء أشجار الطلح والفصائل المماثلة يمكن أن تُحلل وتُستخلص لإعطاء مسحوق دابغ يحل محل مسحوق الميموسا.

