

Dedication

This work is dedicated

To my **father**

My **mother**

To those who are continuously giving me their moral support,

My **husband**

My kids **Mohamed, Basmala & Abd Elrahman**

My **brothers and sisters**

My **Teachers, Friends & Colleagues,**

With great appreciation & honor

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Abstract

This study was conducted to estimate the relationship between and within some Sudanese camel breeds (Kababeish, Shanabla and Nyalawi) by digestion of mitochondrial DNA using three different restriction enzymes. DNA was extracted from 45 blood samples of Sudanese camels (15 samples from each breed). Polymerase chain reaction was done using specific primers in order to amplify the D-Loop region. The PCR products were digested using three different restriction enzymes (tag1, hinf and scal). The products were run on agarose gel 2%. The result of this study revealed differences between the three breeds according to digested and undigested samples. Tag1 did not cut any of the 45 samples of all breeds, while Scal cut 4.4% of the Shanabla breed, 6.7% of Kababeish breed, but did not cut any of Nyalawei camels. The third restriction enzyme hinf cut all sample from Shanabla camels, and also cut 95.6% of Kababeish breed and also 95.6% of Nyalawei camels. The number of samples included in this study although gives limited results, but it highlighted some dark areas, which led us to recommend more molecular markers should be used to get more definite and specific information which can help in management and conservation of the breed resource prevent replacement through cross breeding.

ملخص البحث

أجريت هذه الدراسة بغرض تحديد العلاقة بين بعض أنواع الابل السودانية (الكبابيش، الشنابلة والنيالاي) عن طريق هضم الميتوكوندريا DNA باستعمال ثلاثة أنواع مختلفة من انزيمات القطع (tag1, hinf and scal) أخذت 45 عينة دم من الثلاثة أنواع (15 عينة من كل نوع) تم استخلاص ال DNA. استخدمت تقانة انزيم البلمرة المتسلسل ال(PCR) باستعمال بادئ القراءة المعينة لكي يضخم منطقة حلقة ال(D-Loop). منتج ال بي سي أر هضم باستعمال انزيمات القطع المختلفة الثلاثة، المنتج وضع على هلام 2% agarose وقيم بجهاز الفصل الكهربائي (Electrophoresis)، كشفت نتيجة هذه الدراسة الاختلافات بين الأنواع الثلاثة طبقا للعينات المهضومة والغير مهضومة tag1 لم يقطع أى من ال45 عينة من كل الأنواع، بينما scal قطع 4.4% من الشنابلة، 6.7% من الكبابيش ولكن لم يقطع أى من ابل النيالاي و قطع انزيم القطع الثالث hinf كل عينات الشنابلة و قطع 95.6% من الكبابيش و قطع ايضا 95.6% من ابل النيالاي. عدد العينات فى هذه الدراسة أعطى ضوء لنتائج يمكن الاعتماد عليها مستقبلا بعد مزيد من العينات والاختبارات الجينية حتى تتمكن من الحماية والاحتفاظ بالسلالات النقية للابل السودانية.

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