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ABSTRACT

This study was conducted to study quality of moringa oil and his suitability for frying, Samples of moringa seeds were collected from Aldamazin, subjected for the proximate analysis of seeds and physicochemical analysis and frying quality of oil (AOAC 2000). We found that the oil content, protein, moisture, crude fiber, carbohydrates and ash were 43.79%, 41.13 %, 4.55%, 4.40%, 2.77% and 3.36% respectively. The Values obtained for physical properties of moringa oil for refractive index, density and viscosity were 1.4670, 0.8999, and 35.60 respectively. And for yellow, red and blue colour were 4.0, 0.1 and 0.00, respectively. The chemical properties of moringa oil included: Peroxide value, free fatty acid, Saponification value and Iodine value were 1.00, 0.282, 180.90 and 51.90, respectively. The fatty acids composition were determined as oleic acid, omega 3 acid, arachedonic acid, stearic acid, palmitic acid and other acids were found 57.0 ,13.3 ,10.5 , 8.9 , 8.2 and 2.1% , respectively.

The results obtained showed that there were significant difference ($P^{\leq \leq} 0.05$) of physical properties of the density and refractive index for moringa oil, groundnut oil and their blend before frying. Also the results obtained showed that there was no significant difference ($P^{\leq \leq} 0.05$) in the viscosity between moringa oil and groundnut oil before frying, While a significant difference ($P \leq 0.05$) was showed in the viscosity between moringa oil and the blend before frying,

The results obtained showed that there were significant difference ($P \leq 0.05$) of the density, the viscosity and refractive index after frying between moringa oil and groundnut oil. Also the results obtained showed that there was a significant difference ($P \leq 0.05$) of the viscosity and refractive index after frying between moringa oil and the blend, while no significant difference ($P \leq 0.05$) was showed in the density after frying between moringa oil and the blend.

The results obtained showed that there was significant difference ($P \leq 0.05$) in chemical properties of the peroxide value for moringa oil compared with groundnut oil and their blend before frying and after frying, while there was no significant difference ($P \leq 0.05$) of the peroxide value for moringa oil, groundnut oil and their blend before frying compared to after frying. The results obtained showed that there was significant difference ($P \leq 0.05$) in free fatty acids for moringa oil compared with groundnut oil and their blend before frying and after frying, while there was no significant difference ($P \leq 0.05$) of F.F.A for moringa oil, groundnut oil and their blend before frying compared to after frying. The results obtained showed that there was significant difference ($P \leq 0.05$) in sensory evaluation in the taste, colour and acceptability for potato chips fried in moringa oil, groundnut oil and their blend, also no significant difference ($P \leq 0.05$) in odour and texture for potato chips fried in moringa oil

compared with groundnut oil, while a significant difference ($P \leq 0.05$) in odour and texture for potato chips fried in moringa oil compared with the blend.

خلاصة الاطروحة

أجريت هذه الدراسة لدراسة جودة زيت المورينقا وملائمته للقلي (التحمير). تم جمع بذور المورينقا من منطقته الدمازين, اخضعت العينة للتحليل التقريبي للبذور, التحاليل الفيزيوكيميائية ومعرفة جودة التحمير للزيت باستخدام AOAC (2000).

وجد أن التحليل التقريبي لبذور المورينقا للزيت, البروتين, الرطوبة, الألياف, الكربوهيدرات والرماد هي 43.79%, 41.13%, 4.55%, 4.40%, 2.77% و 3.36% علي التوالي. أوضحت نتائج الخواص الفيزيائية لزيت المورينقا: معامل الانكسار, الكثافة النسبية, اللزوجة 1.4670, 0.8999, 35.60 علي التوالي . وللالوان أحمر , أصفرولبني 4.0 , 0.1 و 0.0 علي التوالي .

أما الخصائص الكيميائية فكانت القيم كالآتي: 1.00, 0.282, 180.90 و 51.90 لكل من قيمة البيروكسيد, نسبة الأحماض الدهنية الحرة, قيمه التصبن والرقم اليودي علي التوالي.

أيضا تم التعرف علي تركيب الأحماض الدهنية لمعرفة نسبه حمض الأوليك ونسبه الأحماض الغير مشبعة في الزيت وكانت كالآتي: 57.0 , 13.3 , 10.5, 8.9 , 8.2 و 2.1 لكل من حمض الأوليك, اوميغا 3, اراشيدونك, استيارك , بالمتيك و نسبه بسيطه من الأحماض الأخرى.

في الخواص ($P \leq 0.05$) أوضحت النتائج أن هناك اختلافات معنوية الفيزيائية في كل من الكثافة ومعامل الانكسار لزيت المورينقا مقارنة مع زيت الفول السوداني والخليط قبل التحمير, كذلك أوضحت النتائج عدم وجود اختلافات في اللزوجة بين زيت المورينقا وزيت الفول السوداني قبل ($P \leq 0.05$) معنوية في اللزوجة بين زيت المورينقا ($P \leq 0.05$) التحمير , بينما توجد اختلافات معنوية والخليط قبل التحمير.

في الكثافة ($P \leq 0.05$) أيضا أوضحت النتائج وجود اختلافات معنوية وللزوجة ومعامل الانكسار بعد التحمير بين زيت المورينقا والفول السوداني في اللزوجة ومعامل ($P \leq 0.05$), أيضا أوضحت النتائج وجود اختلافات معنوية الأنكسار بعد التحمير بين زيت المورينقا والخليط , بينما لا توجد اختلافات معنوية . في الكثافة بعد التحمير بين زيت المورينقا والخليط .

في الخواص الكيميائية ($P \leq 0.05$) أوضحت النتائج وجود اختلافات معنوية والتي تتضمن قيمة البيروكسيد لزيت المورينقا مقارنة مع زيت الفول السوداني والخليط قبل التحمير وبعد التحمير, كذلك أوضحت النتائج عدم وجود اختلافات في البيروكسيد لكل من زيت المورينقا , زيت الفول السوداني ($P \leq 0.05$) معنوية والخليط قبل التحمير مقارنة مع بعد التحمير, أيضا أوضحت النتائج وجود اختلافات في الأحماض الدهنية الحرة لزيت المورينقا مقارنة مع زيت ($P \leq 0.05$) معنوية الفول السوداني والخليط قبل التحمير وبعد التحمير, كذلك أوضحت النتائج عدم في الأحماض الدهنية الحرة لكل من زيت ($P \leq 0.05$) وجود اختلافات معنوية . المورينقا , زيت الفول السوداني والخليط قبل التحمير مقارنة مع بعد التحمير .

في التقييم الحسي ($P \leq 0.05$) أوضحت النتائج وجود اختلافات معنوية الطعم , اللون , والجودة الكلية للبطاطس المحمرة بزيت المورينقا مقارنة مع في الرائحة ($P \leq 0.05$) الفول السوداني والخليط , كذلك لا توجد اختلافات معنويه والقوام للبطاطس المحمرة بزيت المورينقا مقارنة مع زيت الفول السوداني , في الرائحة والقوام للبطاطس المحمرة ($P \leq 0.05$) بينما توجد اختلافات معنوية بزيت المورينقا مقارنة مع الخليط .