

## Abstract

This is a descriptive cross sectional study conducted during the period from February to March 2015 to determine the antibacterial activity of green tea extract against *Staphylococcus aureus* nasal carriage among health care workers in Omdurman Teaching Hospital. A total of 100 nasal swabs were collected from healthcare workers in Omdurman Teaching Hospital. These specimens were inoculated onto Manitol salt agar media and incubated aerobically at 37°C for 24 hours. The isolates were then identified using the conventional method. Nineteen out of 100 patients were found to harbour *S. aureus* (19%), of them, 8 were isolated from males and 11 from females. Age of participants range between 25-45 years. The antibiotic susceptibility testing was performed using standard disk diffusion method. The results showed that all *S. aureus* isolates were resistant to penicillin.

Out of the 19 *S. aureus* isolates, 15(79%) were susceptible to cefoxitin while the reminded 4(21%) were cefoxitin resistant. Cefoxitin resistant isolates termed to be methicillin resistant *Staphylococcus aureus* (MRSA).

The antibacterial activity of green tea against *Staphylococcus aureus* nasal carriage, MRSA and *S. aureus* ATCC 25923, was performed at different concentrations in water and methanol extracts using the agar dilution method. Both water and methanol extracts of green tea showed antibacterial activity against all the isolates of *S. aureus*, MRSA and *S. aureus* ATCC 25923, ( $P=0.001$ ). The MIC of green tea extracts from water and methanol was obtained by agar diffusion method, they were 25 mg/ml and 12.5 mg/ml respectively for *S. aureus* isolates.

Gas chromatography analysis revealed that 23 chemical compounds of green tea and the compounds were identified qualitatively by the Retention time and quantitatively by the area under the curve.

## مستخلص الاطروحة

أجريت هذه الدراسة في الفترة من فبراير، حتى مارس 2015 في ولاية الخرطوم لدراسة نشاط مستخلص الشاي الأخضر على المكورات العنقودية الذهبية المعزولة بالمسح الأنفي تم جمع مئة عينة من العاملين في مجال الرعاية الصحية في مستشفى امدرمان التعليمي.

تم تزرع هذه العينات في وسط المانيتول أقار المغذي والتحصين الهوائي لمدة 24 ساعة في درجة حرارة 37 درجة مئوية. تم استخدام الطرق التقليدية المعروفة وهي صبغة جرام والاختبارات الكيماوية الحيوية.

كانت المعزولات المتحصل عليها 19 من بكتيريا المكورات العنقودية الذهبية، 8 تم عزلها من الذكور و 11 من الاناث المشاركين في الدراسة. تراوحت اعمار المشاركين بين 25 - 45 سنة.

تم قياس الحساسية للبكتيريا المعزولة لبعض المضادات البكتيرية بواسطة طريقة الانتشار الطبقي القياسي. من المكورات العنقودية الذهبية التي عزلت من المستشفى، 15 (79%) لم تقاوم الميثيسيلين. منها 4 (21%) فقط مقاومة للميثيسيلين.

ايضا تضمنت هذه الدراسة نشاط المضاد للبكتيريا لتراكيز مختلفة لمستخلصات الشاي الاخضر في الماء والميثانول باستخدام طريقة اختبار الانتشار الطبقي للأجار. أظهرت الدراسة ان مستخلصات الشاي الاخضر لها فعالية ضد كل المكورات العنقودية الذهبية المعزولة المقاومة للبنسلين والميثيسيلين. أظهرت الدراسة ايضا ان التركيز المثبط الأدنى لمستخلصات الشاي الاخضر من الماء كان 25 ملغ/مل والميثانول 12.5 ملغ/مل.

اظهر التحليل اللوني للغاز 23 مركبا للشاي الاخضر وحددت هذه المركبات نوعيا باستخدام الوقت المحتفظ وكما عبر المنطقة تحت المنحني.

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