

# **Bioactive ingredients of *Nigella sativa* and uses as antimicrobial and clot lysis agents**

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## **Abstract**

### **Bioactive ingredients of *Nigella sativa* and uses as antimicrobial and clot lysis agents**

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Over many studies *Nigella sativa* prove its importance as a valuable medicinal plant, in this study I aim to investigate clotlysis activity and antimicrobial activity in *Nigella sativa*. The method used to test the hypothesis of the study is to use the *Nigella sativa* in different concentrations of aqueous solution diluted by pooled platelet poor plasma (16%, 8%, 4%, 2%, 1%, 0.5%) and added to the formed clot to investigate its activity as thrombolytic agent. and the extract obtained from *Nigella sativa* seeds in different kinds of solutions (aqueous solution, petroleum ether, methanol) to determine the bioactive constituents in the extracts against *Staphylococcus aureus* and *Escherichia coli*. The result showed that *Nigella sativa* has an anti-thrombolytic activity. And also results proved that the extracts were active against both strains of bacteria.

## المستخلص

### *Bioactive ingredients of Nigella sativa and uses as antimicrobial and clot lysis agents*

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كلية الدراسات العليا

أثبتت الكثير من الدراسات عبر التاريخ أهمية الحبة السوداء كنبته طبية ، هدفت هذه الدراسة إلى التحقق من خواص الحبة السوداء كعامل محلل للجلطة الدموية وكمضاد للبكتيريا. تتمثل الطريقة المستخدمة لاختبار فرضية الدراسة بإستخدام المستخلص المائي بتركيز مختلفة مخففة بواسطة البلازما الفقيرة من الصفائح الدموية (0.5%, 1%, 2%, 4%, 8%, 16%).، لإختبار خاصية تحلل الجلطة الدموية فيه. بالإضافة إلى إستخدام المستخلص الذي تم الحصول عليه من بذور نيجيلا ساتيفا في أنواع مختلفة من المحاليل (محلول مائي، بتروليميثير ، ميثانول) لتحديد المكونات النشطة بيولوجيًا في المستخلصات ضد المكورات العنقودية الذهبية والإشريكية القولونية. إستطاعت الدراسة أن تثبت أن للحبة السوداء فعالية كعامل محلل للجلطة الدموية , بالإضافة إلى فاعليتها كعامل مضاد لكلا النوعين من البكتيريا.

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## 5.1 conclusion

The use of herbal drugs as complementary medicine is prevalent and gaining worldwide popularity. Many drugs are derived directly from plants; while the others are chemically modified natural products. We conclude that pharmacological potential of *N. sativa* seeds, its oil and extracts and some of its active principles, possess remarkable in vitro and in vivo pharmacological activities against a large variety of diseases and found to be relatively safe. And in this research it proven that *Nigella sativa* has anability as clot lysis agent for which we added *nigella sativa* aqueous solution diluted withplatelet poor plasma tothe clotted blood, there was significant difference between the weight of blood clotbefore and after,the results

showed that Increase in dilutions decreased the activity and vise a versa. As it's indicated by the result. Another result this research proves that *N. sativa* has an anti-microbial activity, the antimicrobial activity of the extract obtained from *N. sativa* seeds was investigated against *S. aureus* and *E. coli*. The results indicate that the extracts were active against both strains

## **5.2 Recommendations**

- Further researches should focus and explore the specific cellular and molecular targets of various constituents of *N. sativa*, particularly TQ.
- Further investigations are required to study the mechanism of actions of *N. sativa* seeds and its constituents by which they exert their therapeutic effects.
- Chemical modifications in the molecular structure of TQ, and other constituents of *N. sativa* seeds could lead to more effective and safer drugs for the treatment of wide variety of diseases in the future.