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**Thymoquinone, an active component of *Nigella sativa* seed, possesses antibacterial activity against anaerobic human pathogens**Mohammad Akram Randhawa<sup>1</sup>, Awwad Khalaf Alenazy<sup>2</sup>, Majed Gorayan Alrowaili<sup>3</sup> and Jamid Basha<sup>4</sup>Department of Pharmacology<sup>1</sup>Community Medicine<sup>2</sup>Surgery<sup>3</sup> and Microbiology<sup>4</sup>

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*Nigella sativa* (*N. sativa*) seed, known as 'Black Seed' has been used for many ailments in Traditional Systems of Medicine. *N. sativa* contains many active compounds, like thymoquinone, thymohydroquinone, dithymoquinone, thymol, carvacrol, nigellimine, nigellidine, nigellidine and alpha-hederin. Thymoquinone, the most abundant active principle of *N. sativa* is known to kill many types of microorganisms. However, its activity against anaerobic bacteria is not well known. These bacteria reside normally in oral cavity and intestines. They become pathogenic and can cause infection in persons who have immune deficiency due to diabetes, HIV infection, anticancer chemotherapy, immune suppressants, or broad-spectrum antibacterial drugs. They can cause severe infections, including diarrhea, aspiration pneumonia and brain abscess. Only a few antibacterial drugs are effective against them, like metronidazole, which has many side effects. In the present study thymoquinone was investigated in vitro for its activity against some anaerobic human pathogens (*Clostridium difficile*, *Clostridium perfringens*, *Bacteroides fragilis*, and *Bacteroides thetaiotaomicron*) and compared with metronidazole. MICs of thymoquinone and metronidazole were determined against these anaerobes when grown in sheep blood agar and were found to be between 10-80mg/L for thymoquinone and 0.19 to 6.25mg/L for metronidazole. Results of present study support the use of black seed in treatment of diarrhea in folk medicine. Further investigations are needed for determination of synergistic effect of thymoquinone in combination with metronidazole and the activity of derivatives of thymoquinone against anaerobic infections.

**Biography**

Mohammad Akram Randhawa graduated from King Edward Medical College, Lahore, in 1973 and completed his Masters from University of Punjab in 1977. Then after, he was deputed for postgraduate training in Clinical Pharmacology at St Bartholomew's Hospital, London, UK. On his return to Pakistan obtained PhD degree from Quaid-i-Azam University, Islamabad. Currently, he is Professor and Head of the Department of Pharmacology, College of Medicine, Northern Border University, Arar. He has published 45 research papers in reputed scientific journals and has reviewed numerous research projects and manuscripts, mostly related to membrane transport of drugs and *N. sativa* (Black seed).

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