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Study the Analgesic Activity of Nigella Sativa L. Volatile Oil Against Pain in Mice

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ABSTRACT

Objective: The black seed, Nigella sativa (NS) is a member of the family Ranunculaceae Known commonly as (black cumin). Recently many biological activities have been reported. The present study was carried out to evaluate the in vivo analgesic activity of the seeds volatile oil.

Materials & Methods: The extract was prepared by 50 gram of seeds powder was extracted in soxhlet apparatus. The extract was concentrated under reduced pressure. The concentrated extract was distilled. The distillate was dried over magnesium sulphate. We got 0.5 ml of yellow volatile oil. Writhing test was used as analgesic test by injected each mouse with (0.2 ml) acetic acid (7 %) intraperitonially and we have been measured the number of writhing for 20 minutes to see the result. Aspirin (acetyl salicylic acid) was used as standard drug.

Results: The results shows that volatile oil of Nigella sativa and may be its constituent, thymoquinone, have a good significant effect against pain $p < 0.05$, $p < 0.01$ and $p < 0.001$ to the doses 0.05 ml, 0.1 ml and 0.2 ml respectively in dependent dose.

Conclusion: The volatile oil of Nigella sativa could be considered as a good analgesic activity.

Keywords: analgesic, Nigella sativa, thymoquinone, volatile oil.

1. INTRODUCTION

The black seed, Nigella sativa (NS) is a member of the family Ranunculaceae Known commonly as black cumin (Nickavar B. et al., 2003; Hanafy M.S. and Hatem M.E., 1991). It's an herbaceous plant that grows in Middle East countries (Musa D. et al., 2004). It contain more than 30% of fixed oil and 0.4 – 0.45 % wt/wt of volatile oil. The volatile oil contains 18.4 – 24% thymoquinone (TQ) and 46% many monoterpenes such as p-cymene and α– piene (Nickavar B. et al., 2003). Black cumin seeds can be used as condiment in bread and other food, as additive for spice and flavored and aromatic substances. Recently many biological activities of Nigella sativa seeds (NSE) have been reported, including antifungal, antibacterial antiviral and antihelmintic ones (Hanafy M. S. and Hatem M. E., 1991; Morsi N. M., 2000). Other have reported that the seeds are used for treatment of flatulence and abdominal ailments , decrease fasting plasma glucose concentration in rabbit , increase serum total protein , as diuretic , hepatoprotective and hypotensive (Musa D. et al., 2004) The volatile oil has antioxidant properties (Burits M. and Bucar F., 2000). Antitumor activity of NSE has been recorded by many authors (Salomi N. J. et al., 1992).

In this study we investigated the effect of volatile oil on pain in mice. Pain is defined as an unpleasant sensation that can be either acute or chronic and that is a consequence of complex neurochemical processes in the peripheral and central nervous system. The majority of tissues and organs are innervated by special sensory receptors (nociceptors) connected to primary afferent nerve fibres of different diameters. Small myelinated, as fibres and unmyelinated C fibres are believed to be responsible for the transmission of painful stimuli. These afferent primary fibres terminate in the dorsal horn of the spinal grey matter (Tuboly G. et al., 2009; Park T. J. et al., 2008; Indo Y., 2010; Stone L. S. and Molliver D. C., 2009). Pain transmission onward is far more complex and understood less well.