

Comparing the effect of *Nigella sativa* extract and gentamicin in the treatment of urinary tract infection caused by Ecoli

Rafieian M¹, Shahinfard N, Ansari R, Namjoo AR, Sadri M, Musavi F, Ashrafi K, Asgharzade S, Mirzaeian A

Medical Plants Research Center, Shahrekord University of Medical Sciences, Sharekord, Iran.

Pathobiology Dept., Islamic Azad University, Shahrekord Branch, Shahrekord, Iran

Background and aim: The antibiotics' side effects and microbial resistance have increased attention to natural antimicrobial to treat infections. This study was aimed to investigate the antimicrobial effects Black Seed (*Nigella sativa*) extract and its possible nephrotoxicity in comparison to gentamicin. The effect of Black Seed on gentamicin induced renal toxicity and its synergistic effect on antibacterial activity of gentamicin was also evaluated

Methods: In this experimental study, 34 male New Zealand rabbits were designated into 7 groups: gentamicin - bacteria, Black Seed - bacteria, Black Seed - gentamicin – bacteria, bacteria, gentamicin -Black Seed, gentamicin and control groups. Ten days after administration of drug or placebo, the animals were anesthetized and the kidneys were collected. The nephrotoxic effects of gentamicin and protective effects of black seed on kidney were studied.

Antibacterial effects of the extracts were evaluated with the laboratory tests and the MBC and MIC values were obtained with extracts of Black Seed.

Results: The level of urea nitrogen (140%) and creatinine in blood (130%) and urine (196/8%) (0.05). But, they decreased in Black P<increased in bacteria group compared to control group (0.05). In P<seeds (71/30%, 75%, 4/60% and 57/29%, respectively) compared to bacteria group (bacteria group the alanine aminotransferase enzyme decreased (25/33%) compared to control (0.05). Histopathological examination of kidney tissue, showed that renal lesions in P<group (bacterial and, bacteria- gentamicin groups (ATN) were more than black seed – bacteria and bacteria – gentamycin-black seed (minor necrosis) groups

Conclusion: Given the above results, Black Seeds in addition to antibacterial effect against *E. coli*, can prevent the nephrotoxic effects of gentamicin. Therefore, it may be considered as an alternative to, or in combination with gentamicin.

Keywords: Nigella sativa extract, Gentamicin, Rabbit, Kidney infection