

## Immunomodulatory Effect of Nigella sativa Extract through the Improvement of IL-1 $\beta$ Level in Balb-c Mice Infected by Methicillin-resistant Staphylococcus aureus

<b>Title</b>	Immunomodulatory Effect of Nigella sativa Extract through the Improvement of IL-1 $\beta$ Level in Balb-c Mice Infected by Methicillin-resistant Staphylococcus aureus
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<b>Abstract</b>	<p>Nigella sativa (NS) has been used for many years as an anti-bacterial herbal treatment, such as Methicillin-resistant Staphylococcus aureus, but the mechanism in bacterial elimination is still unknown. IL-1<math>\beta</math> is a proinflammatory cytokine that helps the immune system eliminate microbes when it enters the body. The purpose of this study was to prove the immunomodulatory effects of Nigella sativa extract through increased IL-1<math>\beta</math> in dealing with MRSA infections. The design of this study was post-test only control group design using 25 male Balb-c mice infected with MRSA and randomly divided into five groups. Group K was infected with MRSA without being treated. All treatment groups were given NS extracts in different doses for 7 days before being infected with MRSA. P1 was given N. sativa extract 0.05ml, P2 (was given NS extract 0.25ml, P3 was given 0.5ml NS extract, and P4 was given 0.75ml NS. On the 8th day, blood was taken from the retroorbital plexus for IL-1<math>\beta</math> level examination using ELISA. Statistical tests were done using the One Way ANOVA test. The results showed the mean of IL-1<math>\beta</math> levels in group K was 11.65ng/L, P1 was 14.07ng/L, P2 was 16.66ng/L, P3 was 18.54ng/L, and P4 was 19.49ng/L which showed an increase in IL-1<math>\beta</math> levels along with the addition of black cumin dose although there was no difference between groups (p=0.578: ANOVA test). Nigella sativa extract is not proven effective in increasing IL-1<math>\beta</math> levels of Balb-c mice infected with MRSA.</p>
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