

Thesis Title Effects of Elephant Garlic Volatile Oil
 (*Allium ampeloprasum*) and T-2 Toxin on Murine Skin

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ABSTRACT

Effects of elephant garlic (*Allium ampeloprasum*) volatile oil (GVO) and T-2 toxin on Swiss albino mice were studied. The animals were 1) topically applied GVO on the right footpad, 2) topically applied T-2 toxin, 3) GVO application followed by T-2 toxin (GVO/T-2), 4) T-2 toxin application followed by GVO (T-2/GVO). All animals were observed by Langerhans cells enumeration and pathological changes on day 1, 3, 5, 7. The results demonstrated that GVO could protect skin damage induced by T-2 toxin. The number of Langerhans cells in GVO treated group was not

significantly different when compared with the control. Langerhans cells density in T-2 toxin treated group was reduced by 20-35% of the opposit control footpad. In GVO treated group, the Langerhans cells density was in the range of $1097 \pm 33/\text{mm}^2$ to $1624 \pm 19/\text{mm}^2$ on the right footpad and $1143 \pm 33/\text{mm}^2$ to $1674 \pm 21/\text{mm}^2$ on the left footpad.

In T-2 toxin treated - group, the Langerhans cells density was in the range of $629 \pm 29/\text{mm}^2$ to $1090 \pm 31/\text{mm}^2$ on the right footpad, and $962 \pm 40/\text{mm}^2$ to $1392 \pm 29/\text{mm}^2$ on the left footpad. GVO/T-2 and T-2/GVO treated mice showed a decrease in number than a single T-2 toxin treated group. The Langerhans cells in T-2 toxin, GVO/T-2 and T-2/GVO groups were showed a smaller size with shortening dendritic processes.

Histopathological findings revealed desquamation and necrosis of epidermis with edema and inflammatory cells infiltration in T-2 toxin treated group. While GVO/T-2 and T-2/GVO showed a similar sequence but a lesser severe degree. These findings suggested that GVO could protect T-2 toxin induced dermatological damage in mouse footpad both in pre - and post - treatment.