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• **Enhancement of TNF- α Production by Macrophages against Candida Albicans by Aloe vera Gel Extract and its Fractions**

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Background: herbal medicine was considered as valuable treatments by more people from the past. The literature shows that Aloe vera causes to adjust safety response. Macrophages play a vital role in defending host against pathogens by production cytokines like; TNF- α . Also, candida is the fourth infectious agent in hospital infection and is one of the most popular fungal infection. In this study the effect of Aloe vera extract was evaluated on TNF- α production by macrophages. **Materials and Methods:** Candida Albicans was cultured and the aloe vera gel extraction was prepared and its fractions (R5, R10, R30, R50, and R100) were isolated by amicon ultrafiltration method. Then, peritoneal macrophages of Balb/C mice were separated, washed, counted and cultured in 96-well microtiter plates. The extract and fractions were added at various concentrations to the wells, then the Candida albicans were added. The TNF- α production was assessed by using TNF- α R&D quantitative Elisa kit. Statistical analysis using ANOVA were performed and P<0.05 was estimated as significant value. **Results:** the results showed that TNF- α production by macrophages is increased after exposure to aloe vera gel extract and its fractions. Data also show that TNF- α production is increased by aloe vera gel extract and its high molecular weight fractions (R100, R50) at higher concentration (E1/2, E1/5, E1/10).

Conclusion: This study shows that Aloe vera extract and its fraction has effective role in TNF- α production by macrophage. However, it is necessary to biochemical extraction of aloe vera extract and its high molecular weight fraction and its effects in human and animals models.

Keywords: Aloevera, Candida Albicans, Immunomodulator, Macrophage, TNF- α