

## Immunomodulatory Effects of Aloe Vera on the Response of Macrophages in the Presence of the Fungus *Candida albicans*

Seyedeh Somayeh Hosseini\*<sup>1</sup>; Behzad Emamzadegan<sup>2</sup>; Zohreh Farah Nejad<sup>3</sup>; Toba GHazanfari<sup>4</sup>

1-Department of Microbiology, Jahrom Branch, Islamic Azad University, Jahrom, Iran

2-Department of Medical, AJA University of Medical Sciences, Tehran, Iran

3-Department of Fungology, AJA University of Medical Sciences, Tehran, Iran

4-Department of Fungology, School of Medicine, Shahed University of Medical Sciences, Tehran, Iran

hosseini\_somaye@yahoo.com

**Background & Objectives:** Candidiasis is one of the most common fungal infections. Among the *Candida* species, *Candida albicans* has become the fourth most common cause of hospital infections. The innate immune system is the most important to fight fungal infections and candidiasis. One of the major components of the innate immune system is macrophages to destroy this fungus. Regulation of immune responses in the treatment of diseases for many years has been of interest to researchers and immunologist. There are several reports on the effects of Aloe Vera plant and its immunomodulatory effects on the immune system. The aim of this study was to evaluate immunomodulator effects of Aloe vera plant extracts and fractions on macrophages in the immune system.

**Methods:** Aloe Vera extract was filtered through filters 5k, 10k, 30k, 50k, 100k. Thus, R5, R10, R30, R50, R100 and aqueous extract of Aloe Vera plants are chosen for study. We used plate with 96 wells and in each wells added 200000 macrophages, 10000 *Candida Albicans*, the original extract and fractions with different doses. After 20 hours MTT added to each well and after 4 hours Isopropanol solution added to each wells. After dissolving violet crystals, Optical density of wells was read with ELISA READER.

**Results:** Aloe Vera extracts and their fractions was more effective in dilutions up like E1/200 and E1/100 and low dilution, such as E1 / 2 and E1 / 5 was not effective.

**Conclusion:** This study showed Aloe Vera extracts and their fractions in the invitro has an effective role in stimulating the immune system. There are immunomodulatory molecules weight in fractions higher than 10 and maybe 100.

**Keywords:** *Candida albicans*; Aloe Vera Plant; Immunomodulator