

## Lymphocyte Proliferation Potential of Ingredient of PHYTOCEE®: *Emblica officinalis*

### OBJECTIVE

To determine the immunomodulatory properties of *Emblica officinalis* using chromium (VI) as an immunosuppressive agent.

### MATERIALS AND METHODS

The splenocytes were isolated aseptically from Sprague-Dawley rats. Effects on cell proliferation were studied using standardized kit-based assay protocol. Briefly, the cells were incubated along with the drugs and chromium with/without concanavalin-A (ConA)/lipopolysaccharides (LPS) for 72 h. Later, 20 ml of MTS was added and further incubated for 2-5 h. The OD was then measured at 450 nm using an automated ELISA Reader. After culturing the cells in 96-well plates in the presence of con A for 72 h, the cells were centrifuged at 5000 rpm for 10 min and the supernatant was stored at -80°C. Interleukin-2 (IL2) and  $\gamma$ -interferon ( $\gamma$ -IFN) levels were then assayed in the culture supernatant by using ELISA kits.

### RESULTS

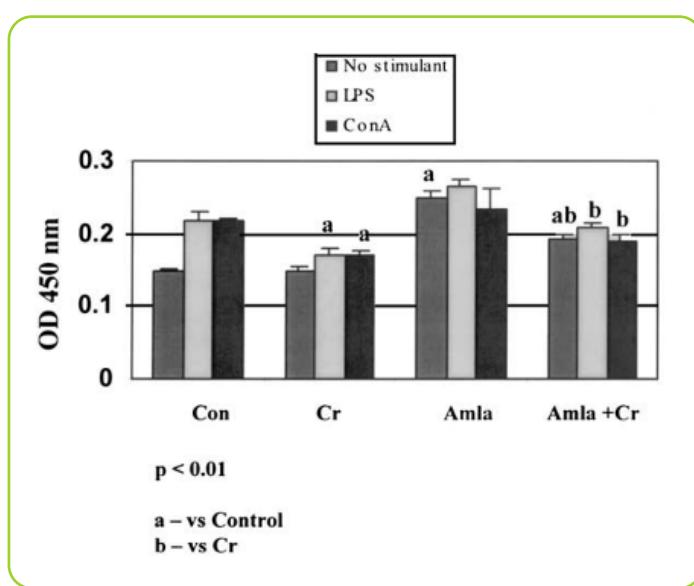


Figure 1 : Effect of Amla on lymphocyte proliferation in the presence / absence of chromium

Values are expressed as mean  $\pm$  SD; n=6

### CONCLUSIONS

Chromium significantly inhibited Con A stimulated lymphocyte proliferation and production of IL-2 and  $\gamma$ -IFN.

### Reference:

Sai Ram M, Neetu D, Yogesh B et al. Cyto-protective and immunomodulating properties of Amla (*Emblica officinalis*) on lymphocytes: an *in-vitro* study. J Ethnopharmacol. 2002 Jun;81(1):5-10.

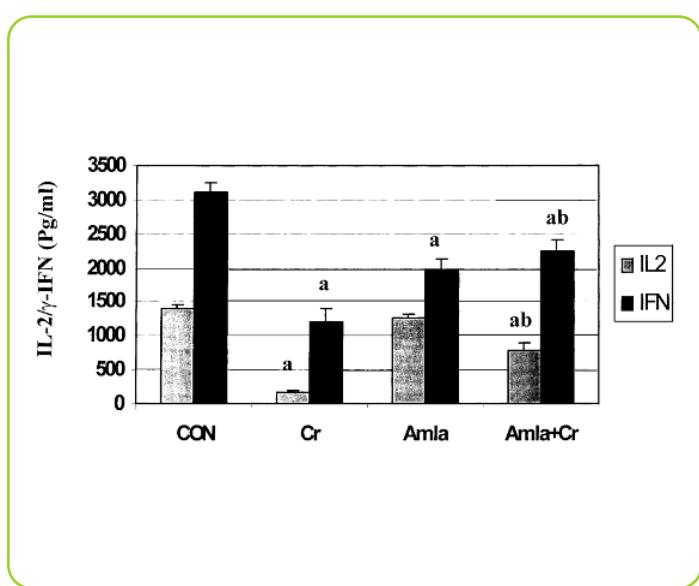


Figure 2 : Effect of Amla on IL-2 and  $\gamma$ -IFN production by lymphocytes in the presence / absence of chromium

Values are expressed as mean  $\pm$  SD; n=6;

<sup>a</sup> Vs. control. <sup>b</sup> Vs. Cr; p<0.01

### OUTCOME

Amla relieved the immunosuppressive effects of Cr on lymphocyte proliferation and even restored the IL-2 and  $\gamma$ -IFN production considerably