

The *Aloe vera* effect on cardiomyocytes and VEGF-A expression in rats after cigarette smoke exposure

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ABSTRACT

The incidence of heart disease related with cigarette smoking has been increasing over the years due to numerous factors, includes smoke cardiomyopathy. Modern medicine is costly and have many side effects. Thus, many people are turning to traditional or herbal medicine instead. Hence, this study was done to evaluate the effect of *Aloe vera* (*A. vera*) gel on protecting cardiomyocyte from exposing cigarette smoke. This experimental study was done to 16 rats (*Rattus norvegicus*) that were divided into two groups. The first group was exposed with smoke of 8 cigarettes/day for 30 minutes and the other group was given 1 ml/day of *A. vera* gel an hour before the exposure of the smoke with same amount of cigarettes for 42 days. The observation was based on histology parameter, they were the number of necrosis cardiomyocytes, cardiac fibroblast, and the level of vascular endothelial growth factor- A (VEGF-A) expression in cardiac using immunohistochemistry technique. Subsequently, the data were analysed statistically. There was a significant reduction in the number of necrosis cells ($p<0.001$), cardiac fibroblast ($p<0.001$), and increasing VEGF-A expression ($p<0.05$) in *A. vera* treated group compared with non-treated group. As a conclusion, *A. vera* gel was effective in reducing the number of cell necrosis decreasing the number of cardiac fibroblast and increasing the VEGF-A expression in rats upon being cigarette smoke exposure.

Keywords: cardiac fibroblast, cardiac myocytes, cigarette smoke, *Aloe vera*, vascular endothelial growth factor-A