

## **Expressions of endothelial cells adhesion molecules are significantly reduced in the presence of minute amount of tocotrienols**

### **ABSTRACT**

Comparative effects of palm tocotrienol rich fractions (TRF) and  $\alpha$ -tocopherol on the expression of adhesion molecules by human umbilical vein endothelial cells (HUVECs) were investigated in the present study. Cell based ELISA technique using a monospecific, monoclonal antibodies was employed to measure expression of intracellular cell adhesion molecules-1 (ICAM-1) and vascular cell adhesion molecules-1 (VCAM-1). Primary HUVECs, cultured on a 96 wells microtiter plate was incubated for 4 hours with different concentration (ng/ml) of TRF or  $\alpha$ -tocopherol before subjected to inflammatory stimulation by incubating it with 2 ng/ml tumour necrosis factor- $\alpha$  (TNF- $\alpha$ ) and further incubated for 4 hours. MTS assay was carried out to ascertain the effects of the different dosages on the cells viability. VCAM-1 expression was significantly decreased when HUVECs were incubated with palm TRF between 10-50ng/ml concentrations. Similar effects of the palm TRF were also observed on the expression of ICAM-1. The effect of  $\alpha$ -tocopherol however was found to be less consistent. At 10ng/ml and 20ng/ml,  $\alpha$ -tocopherol increased VCAM-1 expression. Higher concentration (30-50ng/ml) returned the expression to normal. On the other hand, ICAM-1 was significantly decreased when incubated with 10ng/ml of  $\alpha$ -tocopherol but gradually increased with increased dosage of  $\alpha$ -tocopherol. Our findings suggest that TRF are more potent adhesion molecules expression inhibitor compared to  $\alpha$ -tocopherol in-vitro.

**Keyword:** Palm TRF;  $\alpha$ -tocopherol; ICAM-1; VCAM-1; ELISA