MSM is naturally accruing organic sulphur that is known as a potent anti-oxidant/anti-inflammatory compound. The aim of this study was to investigate the effect of MSM on hemodynamics functions in rats with monocrotaline (MCT)-induced pulmonary arterial hypertension (PAH). Wistar rats were randomly assigned to 38-days pretreatment or 28-days treatment. MSM was administered to rats at 100, 200, and 400 mg/kg/day doses either 10 days before or after a single dose of 60mg/kg, IP, MCT. Rats were anesthetized with pentobarbital and heart tissue samples were obtained to evaluate changes in the antioxidative system and inflammatory genes expression levels including endothelin-1 (ET-1), transforming growth factor-β1 (TGF-β1), angiotensinogen. Analyses of gene expression by RT-PCR found a significantly reduced ET-1, TGF-β1 and angiotensinogen levels at efficient dose in MCT-induced pulmonary arterial hypertensive rats. There was also a similar, non-significant trend for the treatment protocol. Our present results suggest that long term administration of the MSM attenuates MCT-induced PAH related inflammation in rats. Should similar effects of MSM be found on markers of oxidative stress, this may have promise in the treatment and prevention of PAH.

Keywords: Methylsulfonylmethane; gene expression; monocrotaline-induced pulmonary hypertension