

1,8-Cineol: From volatile oils to new applications

Hensel A¹

¹ University of Münster, Institute of Pharmaceutical Biology and Phytochemistry, Münster, Germany

1,8-Cineol (syn. eucalyptol) comprises a bicyclic monoterpene, which can be found in a huge variety of volatile oils (e.g. *Lavandula* sp., *Eucalyptus* sp., *Achillea* sp., *Rosmarinus* sp., *Syzygium* sp. and many others). Many of these essential oils have been traditionally used for cough, bronchitis, sinusitis and respiratory infections. The positive effects, which have been rationalized by clinical studies with Eucalyptus oil can - at least in part - be related to the content of 1,8-cineol. Interestingly, in Germany 1,8-cineol is a licensed drug preparation for oral use (100 mg/capsule) for acute and chronic bronchitis and sinusitis. Besides being a stimulator of mucociliary cells, 1,8-cineol exerts also bronchodilating effects. Inflammatory activity in neutrophils is significantly reduced under *in vitro* conditions, which is due to an inhibition of NF- κ B regulated TNF- α and IL-1 β formation. Further studies indicated also *in vitro* antiviral activity of 1,8-cineol by induction of antiviral transcription factors. Antiinflammatory effects found within *in vitro* experiments have also been proven within *ex vivo* studies with monocytes from asthmatic patients, treated with 1,8-cineol. Clinical studies with patients with acute bronchitis indicated significant benefits from 200 mg 3 \times per day 1,8-cineol. In asthmatic patients significant reduction in glucocorticoid dosages has been described for 1,8-cineol treated patients.

In the last years also potential antiviral effects of 1,8-cineol have been studied, indicating positive results in mice experiments against influenza A virus.

The presentation will summarize the current knowledge on eucalyptol in medical science and it seems obvious that 1,8-cineol is a monoterpene, being worth to get investigated in near future in more details and in state-of-the-art clinical studies for its beneficial actions.