



Comparative study on the antiviral activity of selected monoterpenes derived from essential oils.

Astani A1, Reichling J, Schnitzler P. / Copyright (c) 2009 John Wiley & Sons, Ltd.

Abstract

Essential oils are complex natural mixtures, their main constituents, e.g. terpenes and phenylpropanoids, being responsible for their biological properties. Essential oils from eucalyptus, tea tree and thyme and their major monoterpene compounds alpha-terpinene, gamma-terpinene, alpha-pinene, p-cymene, terpinen-4-ol, alpha-terpineol, thymol, citral and 1,8-cineole were examined for their antiviral activity against herpes simplex virus type 1 (HSV-1) in vitro.

These essential oils were able to reduce viral infectivity by >96%, the monoterpenes inhibited HSV by about >80%. The mode of antiviral action has been determined, only moderate antiviral effects were revealed by essential oils and monoterpenes when these drugs were added to host cells prior to infection or after entry of HSV into cells. However, both essential oils and monoterpenes exhibited high anti-HSV-1 activity by direct inactivation of free virus particles.

All tested drugs interacted in a dose-dependent manner with herpesvirus particles thereby inactivating viral infection. Among the analysed compounds, monoterpene hydrocarbons were slightly superior to monoterpene alcohols in their antiviral activity, alpha-pinene and alpha-terpineol revealed the highest selectivity index.

However, mixtures of different monoterpenes present in natural tea tree essential oil revealed a ten-fold higher selectivity index and a lower toxicity than its isolated single monoterpenes.

REIMA® AirConcept GmbH
Seiferitzer Allee 7
08393 Meerane, Germany

www.duftmarketing.de
info@duftmarketing.de