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Chirality influences the effects of linalool on physiological parameters of stress.

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Abstract

The specific physiological responses induced by inhaling R-(-)- as well as S-(+)-linalool in 24 human subjects undergoing experimental stress were investigated in this study. Various physiological parameters of the autonomous nervous system (heart rate, blood pressure, electrodermal activity) as well as the endocrine system (salivary cortisol) were monitored. The study clearly indicated that odorants can modulate salivary cortisol levels, with both linalool enantiomers exerting relaxing effects. Concerning blood pressure and heart rate, S-(+)-linalool acted as an activating agent in contrast to electrodermal activity. R-(-)-linalool proved to be stress-relieving as determined by heart rate. In conclusion, the results revealed that (1) chirality crucially influences the physiological effects of odorants and that (2) odorants may act differently on certain physiological parameters.