

## PP47. Odor of *ar*-turmerone, $\alpha$ -curcumene, and limonene derivatives depending on their chirality

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The combination of many kinds of odor molecules produces the characteristic aromas of natural odor materials. We found that the odors of such materials were expressed by a set of constituents with similar structures by the investigations of the aroma profiles of several incenses [1]. Recent studies about the olfactory mechanism show that several olfactory receptors interact with one odorant molecule with different intensities and one olfactory receptor responds to different odorant molecules with similar structures. The consequences of this mechanism are that the interactions of several constituents with similar structures are important for the aroma profile. We investigated the relationship between odorant structure and the aroma characteristics of odor molecules focusing on their chirality.

Stereoisomers of *ar*-turmerone,  $\alpha$ -curcumene, and limonene (Fig. 1) have been reported to have different odors. We synthesized a series of derivatives of these compounds to get insight into their structural similarities, especially those relating to the chirality and its interaction with olfactory receptors. We investigated the structure-odor relationships and found important structural factors (molecular skeleton, groups containing oxygen, isoprene moiety) for the onset of specific odors.

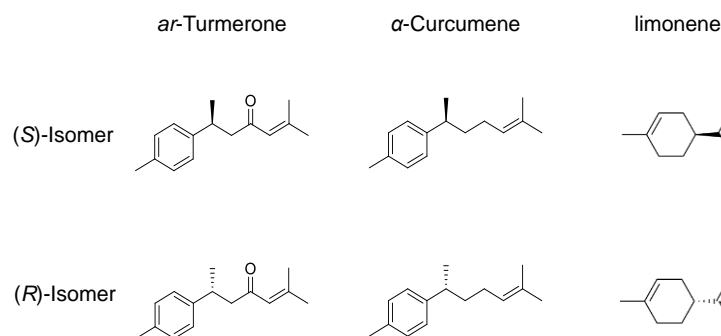


Fig. 1. Stereoisomers of *ar*-turmerone,  $\alpha$ -curcumene, and limonene

### References:

[1] Hasegawa, T., 2012. In: *Distillation-Advances from Modeling to Applications*, Zereshki, S. (ed.), InTech, Rijeka, pp. 199–210.

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