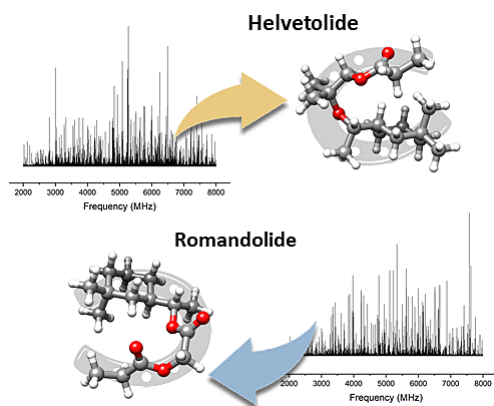


# A CONFORMATIONAL STUDY OF THE ALICYCLIC MUSKS ROMANDOLIDE AND HELVETOLIDE USING BROADBAND ROTATIONAL SPECTROSCOPY

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Musk odorants are important notes in perfumery for their natural, animalistic and warm scent. Understanding how structure and odor relate is important for development of new musk classes, with scalable synthesis and higher biodegradability. However, musks are generally very flexible and difficult to crystallise, and their conformations are unknown. Here we present the conformational study of two widely used alicyclic musks, romandolide ( $C_{15}H_{26}O_4$ ) and helvetolide ( $C_{17}H_{32}O_3$ ), using chirped-pulse Fourier Transform Microwave (CP-FTMW) spectroscopy in combination with theoretical methods. Three conformations of romandolide and five conformations of helvetolide have been identified in the broadband spectra of romandolide and helvetolide, respectively. The observed conformers adopt horse-shoe shapes and are stabilized by dispersion interactions between the side chain and the cyclohexane ring.