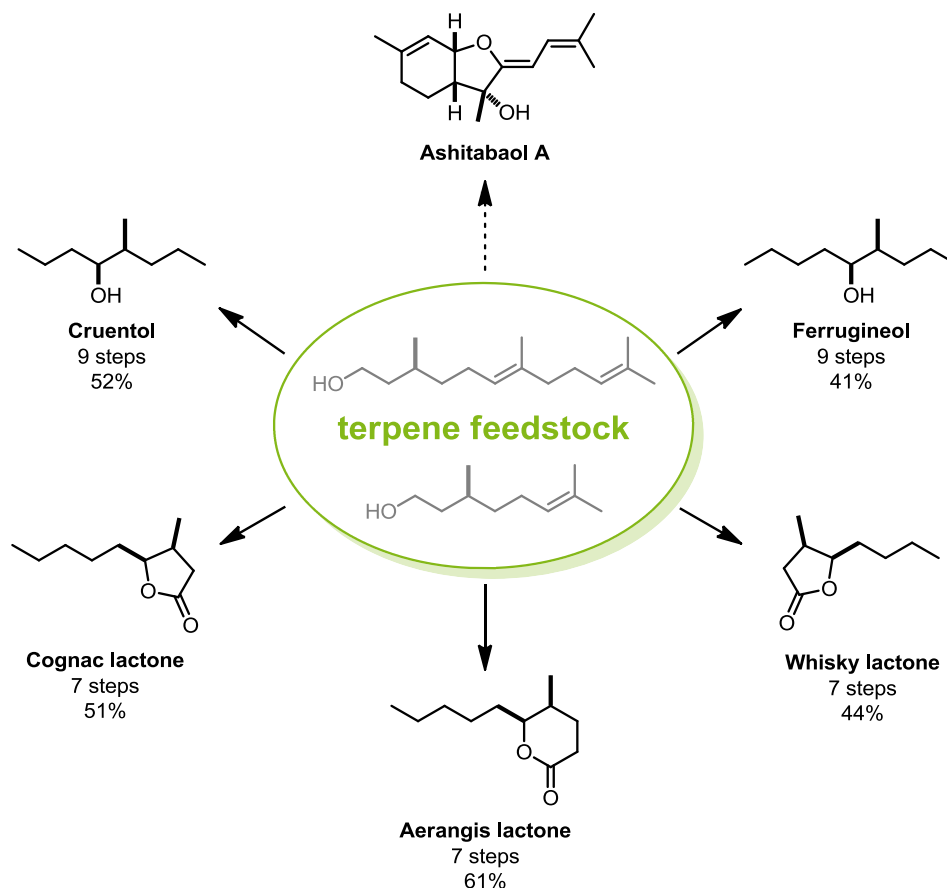


Abstract

On account of their commercial availability in bulk quantities and their diversity in functional groups, number of carbon atoms and chiral information, terpenes constitute economically interesting starting materials for asymmetric total synthesis.



From commercially available terpenes (e.g. citronellol) via a sequence of aerobic oxidations, organocatalytic chlorination and copper(II)-catalysed epoxide opening through to standard group transformations, it was possible to establish a high yielding, scalable and versatile synthesis of aerangis lactone (the main odorant of the white-flowering orchids *Aerangis confusa* and *Aerangis kirkii*), the cognac and whisky lactone (main flavouring of most high-quality alcoholic drinks), as well as for cruentol and ferrugineol (pheromones of the palm weevils *Rhynchophorus ferrugineus* and *Rhynchophorus cruentatus*).

Furthermore a feedstock terpene based total synthesis of the sesquiterpene Ashitabaol A, showing a remarkable free radical scavenging capability ($IC_{50} = 13.8 \mu M$), was initiated. Derived from the Japanese herbe *Angelica keiskei*, which is known in Japanese folk medicine a.o. to speed wound healing and prevent infections, Ashitabaol A is under suspicion to have more medically relevant properties.