New impact odorants of hop aroma

Every hop variety has a unique aroma which researchers have tried to unlock for decades. These Belgian researchers specifically looked into the hop variety Spalter Select and with the means of GC–O were able to identify 14 odor–active compounds. Some of those such as β–myrcene, nonanal, methyl nonanoate, and 3–methylbutyl 2–methylpropanoate have already been reported in the literature as key odorants of hops whereas perillene, cis–β–ocimene, 2–undecanone, 2–dodecanone, and several esters (methyl octanoate, methyl 3–nonenoate, methyl 4–methylpentanoate, and ethyl nonanoate) are absolutely new in this context and were shown to contribute to floral, fruity and citrusy aromas.

To continue with hop variety aroma specifics…

It is slowly becoming evident that the importance of volatile sulfur components from hops is highly underrated! This Belgian research team investigated the distribution of 41 polyfunctional thiols among five hop cultivars: Tomahawk, Nelson Sauvin, Nugget, Cascade, and Saaz. As compared to the other varieties, Tomahawk appeared particularly rich in 3–sulfanyl–2–ethylpropanal (skunky, plastic). Tomahawk and Nelson Sauvin proved to contain higher levels of 3–sulfanyl–2–ethyloctalanal (citrus, peach). Investigating the polyfunctional thiols in beers hopped with different varieties, they found that a few thiols proved not to come only from hops (mainly 2–sulfanylmethyl) acetate, 1–sulfanylpenant–3–one and 1–sulfanylpenant–3–ol). The thiol profile of Saaz–hopped beer even proved similar to that of the unhopped beer! A high level of 3–sulfanyloctanal–1–ol was found to be a indicator of the use of Tomahawk hop. In both Cascade– and Tomahawk–hopped beers, 3–sulfanylhexan–1–ol and 3–sulfanyloctan–1–ol were sensed at high flavor dilutions, although for the latter, significant amounts of the unreduced 3–sulfanylheptanal were found in hop. As previously shown, 3–sulfanyl–4–methylpentan–1–ol remains a good marker of Nelson Sauvin–hopped beers together with 4–sulfanyl–4–methylpentan–2–one. Still, a possible prediction of hop varietal impact in beer requires more than quantitating thiol adducts in hops….