Volatile vs non-volatile

The volatile world of beer is complex, we know. Together with the non-volatile even more! These US researchers looked into the interaction of volatile aroma compounds in beer and non-volatile fractions as proteins and carbohydrates. They found an increase in aroma intensity (apple and banana) with increasing protein levels (perhaps due to the binding of aroma components), and a decrease of dry hop aroma intensity with increasing carbohydrate levels (due to changed viscosity).

Why do noble hops differ from flavor hops?

These German researchers took the varieties Topaz (AUS), Citra (US) and Hallertau Mittefrüh for the production of identical beer with whirlpool aroma addition to see how the aroma and flavor of the beers would differ. They found that 2- and 3-methylbutyric acid, 5-methyl 3-methylbutanethioate, myrcene, linalool and geraniol are important aroma compounds in hops and vary widely between varieties. Whirlpool hopping can contribute high levels of R-linalool and geraniol to beer. Interestingly, the high level of linalool for Mittelfrüh also yielded in the most intense floral impression, while high levels in geraniol, beta-citronellol and methyl geranate correlated with strong citrus aroma. However the other fruity characters from sensory evaluation could not be connected to a single or a certain group of substances.

Why are dry hopped beers more bitter?

This is a popular question, and though it was not really proven so far, the idea that additional alpha acids and polyphenols as well as a certain brain illusion is well accepted. But here are some facts: This US team analysed dry hopped beers for their content of alpha and beta acids, humulinones and polyphenols. The correlation testing with the sensory trials showed that the bitterness contributed by dry hopping is a combination of polyphenols and humulinones! Also a strong correlation of aroma intensity and bitterness intensity was proven. So it is a combination of actual bitter tasting compounds and a portion of a brain based illusion – Cheers!

A new approach to hop freshness

These Chinese researchers propose a new way to evaluate hop freshness, the HFI (Hop Freshness Index). The hitherto established method is the HSI (Hop storage index) where the degradation of alpha and beta acids is measured with absorbance reading. The determination of the HFI is based on the content of alpha, beta and iso-alpha acids measured by a new HPLC method. Within their trials they also discovered that the degradation of alpha (and beta) acids is hop variety dependent.

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