The answer to a lot of questions?
The dream of all hop aroma researchers is to identify all sensory relevant components that cause the different unique hop aromas in beer. Maybe Inui et al. have come pretty close to answering at least some important related questions. Brewing five single variety trial beers (with Hallertauer Mittelfruh, Hallertauer Tradition, Saaz, Perle, Cascade) they looked into the correlation of six specified sensory aroma characteristics in beer with analytical results of GC×GC/TOF-MS measurements. The relevant components to six generic hop aroma characteristics were verified by multivariate analysis of organoleptic evaluation together with component analysis results. Those components with significant differences among five hopped beers were selected. These initially 297 could further be narrowed down to 67 compounds. Their conclusion is that hop aroma in beer probably consists of more than 100 compounds, and some of these are only present below their threshold concentration. However, these compounds may show influences on aroma or flavor in beer by the effect of other coexisting compounds in beer. Therefore, it is incomplete to estimate the key components in hoppy aroma in beer just from thresholds and GC–O results.


The similarities between beer aging and biotransformation
Have you ever wondered what happens to the bitter acids in your beer that you swallow inside of you? These Belgian researchers have, and using liver microsomes isolated from rabbit liver and human microsomes they found that metabolism of β-acids was mainly characterized by conversion into hulupones and the formation of a series of tricyclic oxygenated products. The most important metabolites of α-acids were identified as humuliones and hulupones. Iso-α-acids were found to be primarily metabolized into cis- and trans-humulic acids, next to oxidized alloiso-α-acids. Interestingly, the phase I metabolites were highly similar to the oxidative degradation products in beer. Does this mean in consequence that aged beer is better for the liver?


50 ways to... measure antioxidant activity in hops
These Serbian researchers looked into the comparison of electrochemical versus spectrophotometric assessment of antioxidant activity of hop components.

In conclusion, in contrast to the most commonly applied spectrophotometric antioxidant assays (DPPH, radical scavenging of 2,2-diphenyl-1-picyrhydrazyl, FRAP, ferric reducing antioxidant power and ABTS, scavenging of 2,2-azino-bis-3-ethylbenzothiazoline-6-sulfonic acid) the recently developed DC (direct current) polarographic assay recognizes humulone as a superior antioxidant in comparison with various hop phenolics. This is an additional evidence on bitter acids efficiency as antioxidants, indicated in recent literature, and suggests that their contribution to total antioxidant activity of complex hop samples should not be neglected. Hop H₂O₂ scavenging activity positively correlated with the content of humulone and total resins, and negatively with hop storage index. So the DC polarographic assay might be a good addition for the routine analyses in the brewing industry!


Happy Hoppy Day
November 5th, in St. Johann Train – Hallertau.
Explore the difference of hop flavours in different varieties, learn all about hop aroma and dry hopping techniques together with in situ dry hopping to taste the difference!

Information and registration here:
http://www.barthhaasgroup.com/hopsacademy/dates/83-de/dates/479-happy-hoppy-day-schmecke-den-unterschied

This workshop will be in German

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