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HOP SCIENCE

KNOWLEDGE FOR YOUR SUCCESS

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MORE BITTER TRUTH ABOUT HARD RESINS

What is the influence of hard resins on the reactions in beer during storage? This was the question of this Japanese research team. For this work the compositional changes of hard resins were investigated using a beer aging model. The hard resins contained a series of α -acid oxides. Among them, 4'-hydroxyallohumulinones proved to be unstable during beer storage. In conclusion these researchers were able to show that compositional changes in the hard resins derived from stored hops that occur in beer during storage are attributed mainly to the proton-catalyzed cyclization reaction of 4'-hydroxyallohumulinones. Novel polycyclic compounds, namely, scorpiohumulins and dicyclohumulins have been identified and shown to be stable relative to their precursors. Still it is unclear what the sensory consequences of these changes are; this needs to be investigated.¹

MECHANICS OF DRY HOPPING

A crucial part when talking about dry hopping is handling parameters, e.g. how much do hop particles swell during dry hopping, and is particle size distribution of importance? Does temperature affect process parameters, etc? This German team looked into various parameters and found that different methods for stirring and mixing, as well as different contact times have only little effect in regards to particle size distribution, but they found that wet density increased with increasing temperatures and permeability decreases with increasing temperatures.²

A HOLISTIC VIEW ON HOP AROMA IN BEER

A very comprehensive overview about hop aroma in hops and beer was given by Dr. Rettberg at the recent Microbrew Symposium in Nuremberg. Dr. Rettberg detailed what is known so far and supported by the analytic results of his team, starting with the aroma potential in hops itself and what is left of it in beer. What and how much is lost in the boil and what happens in the whirlpool. Also, the influence of yeast and the extraction time for dry hopping is controversially discussed.³

HOW GOOD IS OUR SENSE OF SMELL?

It is often claimed that humans can discriminate about 10,000 different odors, but this number has never been validated. Although this sounds like a lot, this team of US researchers determined the resolution of the human sense of smell by testing the capacity of humans to discriminate odor mixtures with varying numbers of shared components. On the basis of the results of psychophysical testing they found out that humans can discriminate at least 1 trillion olfactory stimuli, which is far more than previous estimates of distinguishable olfactory stimuli. It demonstrates that the human olfactory system, with its hundreds of different olfactory receptors, far outperforms the other senses in the number of physically different stimuli it can discriminate!⁴

REFERENCES:

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2. Engstle, J: Methods of different characterization of different hop products for Dry Hopping, oral presentation at the MBAA Annual Conference, Jacksonville FL, USA, <http://www.mbaa.com/meetings/archive/2015/Pages/default.aspx>
3. Rettberg, N.: Aroma of late and dry hopped beers – myths, facts or something inbetween, oral presentation at the 4th European Microbrew Symposium VLB, <https://www.vlb-berlin.org/aktuelles/news/4-european-microbrew-symposium-der-vlb-nuernberg>
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HOP OF THE MONTH



Hop composition of the month: YELLOW SUB

This composition turns a fine and excellent hop aroma into a sweet,

fruity Flamenco of apricot and orange, with a hint of blackberries...making your beer irresistible. α -acid content 5-9%; Oil content 1-2 ml/100g. Interested? Write us at Team_TSS@johbarth.de