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HOP SCIENCE

KNOWLEDGE FOR YOUR SUCCESS

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SPICE UP YOUR HOPS!

Belgian researchers are thoroughly investigating the spicy fraction of hop oil. The newest findings can be summarized like this: With a high concentration of hop oil you also receive a high concentration of sesquiterpene oxidation products. The formation of these compounds is largely variety independent. However the level of certain oxygenated sesquiterpenoids (e.g. cubenol, T-cadinol, greenol) does not increase upon boiling, supporting the hypothesis that they are not formed by oxidation but are instead related to the hop plant metabolism.¹

MEASURING HOP AROMA

It is of more and more importance, especially for brewers, to be in the position to analyse the sensory relevant hop aroma components such as geraniol, citronellol etc. This poster describes a highly selective, accurate quantification of hop-derived monoterpene alcohols in beer which is achieved via HS-SPME in combination with GC-ion trap tandem MS. As you might guess, the investment in this equipment is well worth the benefit...²

HOW TO USE PHENOLIC HOP COMPOUNDS FOR VARIETAL DETERMINATION!

Czech researchers have developed a high performance liquid chromatography-high resolution mass spectrometric (HPLC-HRMS) method to characterize and identify flavonoid O-glycosides in hops. This method can be used in combination with chemometrics as a fingerprinting method to differentiate hop varieties based on profiling of flavone and flavonol di- and tri-glycosides.³

REFERENCES:

1. Praet, T., E. Heat-induced changes in the composition of varietal hop essential oils via wort boiling experiments on lab scale, Poster presentation at EBC congress, May 2015, https://www.dropbox.com/sh/c82iw52uj88iywf/AABuTHclTosfC2C5yC_0hBWia?dl=0
2. Opstaele, Ph.: Accurate quantitative determination of hop-derived monoterpene alcohols in beer via ion trap tandem mass spectrometry, poster presentation at EBC congress, May 2015, https://www.dropbox.com/sh/c82iw52uj88iywf/AABuTHclTosfC2C5yC_0hBWia?dl=0
3. Dusek, M.: Metabolomic profiling of selected phenolic compounds in hops by hybrid quadrupole-orbitrap mass spectrometer: a promising approach to detection, identification and studying biologically active compounds in plants, Poster presentation at EBC congress, May 2015, https://www.dropbox.com/sh/c82iw52uj88iywf/AABuTHclTosfC2C5yC_0hBWia?dl=0

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