APRIL 2016

HOP SCIENCE

KNOWLEDGE FOR YOUR SUCCESS

by Dr. Christina Schoenberger, christina.schoenberger@johbarth.de

50 WAYS OF GREEN

What a great name for a presentation! From a brewery manufacturer's point of view, possibilities on how to introduce more hops into the brewing process were presented. This presentation covered brewing performance in terms of hop extraction and reproducibility using a hop bag and the hop slurry technology, and then the aspects of removing the green gold (hops) again.[1]

INSPIRATION FOR HOPPING REGIMES

Very often, highly hop intensive beers create a high bitterness since a lot of craft brewers maximize the hop addition throughout the whole brewing process which contributes to both bittering and aroma. However, it is possible to have a strong hop aroma and flavor together with a low bitterness. This approach was exploited by this German research team monitoring bitter and aroma compounds throughout the process.[2]

LEARNING FROM WINE AROMA RESEARCH

Hops for beer is like grapes for wine, so why not learn something about hops from wine researchers? This French research team is looking into the potential and contribution of sulfur related aroma compounds present in many hop varieties. They found that there is a signficant potential for the varieties studied for precursors leading to 4MMP, 3MH and 3MHA. With these initial findings they have three questions they want to follow with in the future: 1) What is the impact of process transformation of hops on aroma potential? 2) What is the impact of fermentation to release thiols? and 3) Are there other sources for thiols in beer? I see exciting times for hops aroma research coming![3]

PLAYING WITH EXTRACTION PARAMETERS TO GET THE RIGHT FLAVOR

CO_2 is a very potent in extracting basically anything you need from hops. This UK research team worked with different conditions including liquid and supercritical CO_2, as well as the addition of other solvents, e.g. ethanol, to extract the many important aroma fractions from hops. Each hop variety yields distinct oil fractions and a combination of different varieties and fractions can of course contribute to a wide portfolio of products. Also, the processing of aged hops is feasible and possible undesirable flavours may be eliminated in the process.[4]

REFERENCES:

1. Becher, T.: 50 ways of green, oral presentation at the Trends in Brewing Conference, April 2016, Ghent. http://www.trendsinbrewing.org/program.html

2. Forster, A.: special beers with unusual hopping, oral presentation at the Trends in Brewing Conference, April 2016, Ghent. http://www.trendsinbrewing.org/program.html

3. Roland, A.: Characterization of the thiol aroma potential of different hop varieties, oral presentation at the Trends in Brewing Conference, April 2016, Ghent. http://www.trendsinbrewing.org/program.html

4. Marriott, R.: Fractionation of hop oils using CO_2, oral presentation at the Trends in Brewing Conference, April 2016, Ghent. http://www.trendsinbrewing.org/program.html

Barth Haas Experimental Brews – our inspiration for you:

If you have been to the CBC this year I am confident you have tried all of our experimental brews. For those who didn't, here is what you missed: (if you are interested in these beers or the hops we used, send us an email)

Basco's Brew – Named in honor of Gene Probasco, Haas' Lead Breeder for virtually four decades, Basco's Brew is a medium bodied beer, kettle hopped with HBC 682 and HBC 291 (Loral™) in the whirlpool, and then dry hopped with Loral™. This contributes subtle floral and fruity aromas adding a complex and pleasant finish.

Lunacy – It's crazy what aroma hops can do these days. One experimental cultivar, HBC 431, and Loral™, come together in a medium-bodied beer with complex fruit aroma and flavor characteristics that never fail to floor us. It's kettle hopped with HBC 682 followed with HBC 431 and Loral™ added to the whirlpool—then dry hopped with them as well.

Pineasaurus Rex – Fruit, citrus and some pine aromas make for one monstrous ale. It's kettle hopped with HBC 682 with the addition of Vic Secret™ and HBC 431 to the whirlpool—then dry hopped with 50:50 blend of Vic Secret™ and HBC 431 Hops.

Serendipity – It's like destiny brought together two of our favorite hop varieties, creating an IPA with huge aroma and flavor. Kettle hopped with HBC 682, followed by the addition of Citra® and Mosaic® Hops to the whirlpool, and then dry hopped with them as well. Fruit dominates the nose and palate wrapped up with a crisp, refreshing finish.

Pineapple Xpress – Bru-1 and Citra® hops combine to create a unique, almost pineapple-like aroma and flavor. This IPA is kettle hopped with HBC 682 followed by an addition to the whirlpool of Bru-1 and Citra® hops. It's then dry hopped to enhance aroma and taste, with a wonderful fruity character dominating the nose and palate.

Yellow Sub – Sky of blue and hops of green have made this one beer definitely worth opening the hatch for. Brewed using HBC 682 for kettle hopping with Yellow Sub hops added in the whirlpool—and then again during post-fermentation as dry hops to provide additional aroma and flavor. Citrus notes combined with hints of pine create a unique and refreshing beer.

Synchronicity – Sometimes it all comes together perfectly, especially when it's two of our favorite hop varieties. This beer is kettle hopped with HBC 682 followed with a whirlpool addition of HBC 472 and 438—and dry hopped a special blend of them as well. The pairing provides complex woody and fruity aromas, and well-balanced bitterness.