

HOPSTEINER – NEWSLETTER

JUNE 2011

TECHNICAL SUPPORT

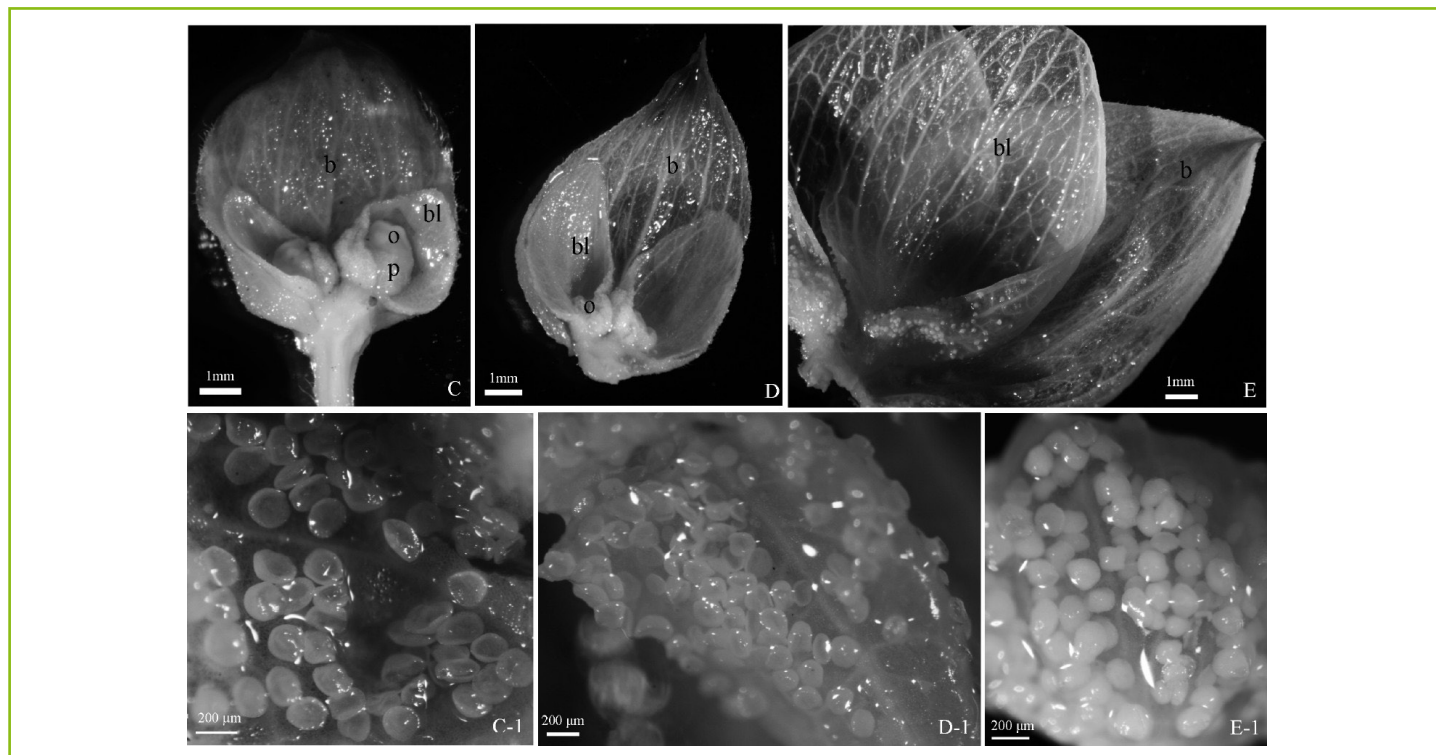



Hopsteiner®

COMMITTED TO THE BREWER.

Careful attention to details of cone maturation

In order to better inform our customers and our research, Hopsteiner has created a most detailed picture of hop cone development in conjunction with botanical experts at The New York Botanical Garden. The new botanical standard provides great detail on morphology of hop cones and can be used by growers, scientists and technical brewers alike to compare studies of flavor change over hop cone maturation in the field.



Three Developmental Stages of Hop Glandular Trichomes. III, IV, and V, (C), (D) and (E) respectively.

Reprinted with permission from: Phytochemical and Morphological Characterization of Hop (*Humulus lupulus* L.) Cones over Five Developmental Stages Using High Performance Liquid Chromatography Coupled to Time-of-Flight Mass Spectrometry, Ultrahigh Performance Liquid Chromatography Photodiode Array Detection, and Light Microscopy Techniques, Adam R. Kavalier, Amy Litt, Chunhui Ma, Nicholi J. Pitra, Mark C. Coles, Edward J. Kennelly, Paul D. Matthews, *Journal of Agricultural and Food Chemistry* 2011 59 (9), 4783-4793 }. Copyright 2011, American Chemical Society.

A full description is available at: <http://pubs.acs.org/doi/suppl/10.1021/jf1049084>

If you're interested in further information please let us know!

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