



MAY 2021

# HOP SCIENCE

KNOWLEDGE FOR YOUR SUCCESS

*Searching the world of hops and brewing to bring you the latest news and research ... so you don't have to!*

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## EMBRACE SLEEP WITH HOPS

A Finnish research team looked into the sedative effects of hops. Apart from hop oil, it is not clear which compounds are responsible for the sedative effect of hops. In this study it was revealed that humulone acts as a positive modulator of GABA A (gamma-amino-butyric acid; a protein complex) receptors at low concentrations. The modulation of the GABAA receptor is responsible for the induction and maintenance of sedation and sleep. They also found that hop flavonoids such as IXN (Iso-xanthohumol) and 6PN (6-prenylarengenin) may potentiate humulone effects on GABAA receptors. Moreover, the displayed humulone synergy with ethanol may contribute to further enhancement of alcohol intoxication with highly hopped beer. So, if you have problems to fall a sleep at night, an IPA may be a beautiful and flavourful way to help.

Scott Ali Y. Benkherouf, Kim Eerola, Sanna L. Soini and Mikko Uusi-Oukari, Humulone Modulation of GABAA Receptors and Its Role in Hops Sleep-Promoting Activity, *frontiers in Neuroscience*, doi: 10.3389/fnins.2020.594708

## ALCOHOL-FREE BEER AND CIRRHOSIS

Non-alcoholic beer is basically the perfect drink. It has everything that beer has but no, or almost no, alcohol. It has several nutrients derived from its ingredients, including vitamin B, minerals, isohumulones and flavonoids, rendering it an attractive nutritional supplement in patients with cirrhosis. Therefore, non-alcoholic beer can be regarded as a "functional" supplement. A Mexican Research group did the following randomized open clinical trial: patients with cirrhosis were randomized into two groups: The intervention (non-alcoholic beer + diet + exercise) and control (water + diet + exercise) group. Treatment consisted of 330 mL non-alcoholic beer/day or the same amount of water, plus an individualized dietary plan and an exercise program. The intervention consisting of non-alcoholic beer, diet and exercise was found to be safe and well tolerated in patients with cirrhosis, and showed improvement in nutritional status, endothelial function, and quality of life.

Macías-Rodríguez RU, Ruiz-Margáin A, Román-Calleja BM, Espin-Nasser ME, Flores-García NC, Torre A, Galicia-Hernández G, Ríos-Torres SL, Fernández-del-Rivero G, Orea-Tejeda A, Lozano-Cruz OA. Effect of non-alcoholic beer, diet and exercise on endothelial function, nutrition and quality of life in patients with cirrhosis. *World J Hepatol* 2020; 12(12): 1299-1313, PMID: 33442456 DOI: 10.4254/wjh.v12.i12.1299

## ISO-ALPHA ACIDS, JUST TO BE ON THE SAFE SIDE

This Italian research team looked into the properties of iso-alpha acids (IAA) to prevent metabolic syndrome and diabetes. Metabolic syndrome (MetS) is a condition characterized by a complex mosaic of metabolic abnormalities, including visceral obesity, impaired glucose tolerance, insulin resistance leading to type II diabetes, dyslipidemia, and atherosclerotic cardiovascular diseases. Acquired and/or genetic factors are involved in the pathogenesis of metabolic syndrome, leading to the rise of oxidative stress and a systemic inflammatory process. Their systematic review of published studies reveals that the hydrophilic IAA from hop bitter acids, as well as their reduced derivatives, have been proven to be effective molecules able to influence several biological targets commonly used for medical nutrition therapies. Bitter compounds were able to positively influence metabolic syndrome-related diseases when tested in vitro and in vivo, from animal models to clinical studies, thanks to their pleiotropic influences. All these aspects make IAA excellent candidates to treat metabolic syndrome disorders.

Ponticelli, M.; Russo, D.; Faraone, I.; Sinisgalli, C.; Labanca, F.; Lela, L.; Milella, L. The Promising Ability of Humulus lupulus L. Iso-alpha-acids vs. Diabetes, Inflammation, and Metabolic Syndrome: A Systematic Review. *Molecules* 2021, 26, 954. <https://doi.org/10.3390/molecules26040954>

So, in conclusion of this newsletter today, a day without hops is a real health risk - please just don't.



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## HOPS ACADEMY

### OUTLOOK HOPS ACADEMY:

- June 10th, Bootcamp Whirlpool Hopping 1; Webinar
- June 17th, Bootcamp Whirlpool Hopping 2; Webinar
- June 24th, Bootcamp Whirlpool Hopping 3; Webinar

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<https://www.barthhaas.com/en/academy>

**Do you have any questions or would you like to book your course? Please send a mail to Susanne: [susanne.hortolani@barthhaas.de](mailto:susanne.hortolani@barthhaas.de)**

