Biochemistry in the context of Beer Science

Hornink, G.G.¹

¹Dep Bioquímica, Instituto de Ciências Biomédicas, Unifal-MG, MF, Brazil

Biochemistry contents are essentials to understanding brewing and students often fail to connect theory with practical applications, in this context, the discipline Beer Science was created, complimenting students' formation. The objective was to integrate the knowledge of biochemistry in beer production and evaluate the students' perception of importance of these. The discipline was given in 2017 and 2018, 24 students per class, with the prerequisite being Biochemistry approval. A didactic sequence was created, starting from the historical aspects and ending with a real beer production. Mains concepts: ph and buffer system; carbohydrates, proteins and lipids in the malt; hops oils/composition; malt and yeast enzymes; fermentative metabolism etc. A questionnaire was applied at the end of the course, evaluating students' perceptions about it, in addition, they delivered a group work simulating a production. Besides the lectures and exercises, 7 practical classes were created, involving the supplies characteristics, mashing buffer effect, temperature and pH effect on the mashing enzymes. There were 31 responses and the students felt very motivated and all considered the biochemical knowledges vital for brewing understanding, attributing greater importance to enzymes and fermentations knowledges, sequentially, to pH, buffer and carbohydrates structure and metabolism. The students emphasized the role of practical classes in order to establish the connections between biochemistry theory and beer production, highlighting the mashing comparison from a matrix of two pH and three temperatures, evaluating the starch hydrolysis with lugol, the amount of fermentable substrate by benedict reaction, and the density by light refractometer. The simulations evaluation indicated that practically all groups were able to apply theoretical knowledge. It is noteworthy that most students felt capable of brewing beer. Disciplines like this are fundamental for the connection between biochemical knowledge and practical applications, such as brewing, especially when developing practices that make this integration possible.

Keywords: Beer science; Biochemistry knowledge; practical class.