



## Craft brewing – is it really about the sensory revolution?

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### Abstract

The sudden craft breweries expansion currently occurring in Europe, and by that also in Croatia, has been a true conundrum. The question is why craft breweries currently undergo such intense propagation. The answers to this is not simple and has to be monitored from a few different angles: what are today's consumer's preferences? Why this sudden need to drink posh beer? Health wise – is it healthier to drink craft beer than industrial? The fact is that craft breweries offer beer with a story. The popularity of health benefits of moderate beer consumption, different reports in popular papers and magazines on polyphenolic and other anti-oxidative compounds that aid catching free radicals and reduce the damage they cause, contribute to the shift from industrial plane lager beer craft beer. In the eye of the scientific storm-genetic manipulation with yeast strains, and barley cultivars, water treatments, automatization, people choose simple procedures and raw materials that give them a feeling of uniqueness. This paper contributes to the knowledge of why craft breweries are taking on more and more popularity and why are consumers attracted to such products.

**Key words:** craft beer, industrial beer, sensory revolution

### 1. Introduction

Beer has always been a greatly valued alcoholic drink, widely spread and consumed all over the world. Even countries in which alcohol is forbidden find ways to consume beer sans alcohol. Many research articles have been written in order to elucidate the same core of beer's composition and health benefits it provides. In the last few years, craft brewing expanded in Croatia, following trends from Europe and on the global scale, the world (well mostly USA). Craft beer, in most cases, is not submitted to filtration or pasteurization, maintaining its original sensorial characteristics, full-bodied taste and aromas. Today's consumer's preferences have changed regarding brewing industries. Customers choose the craft beer industry and help the expansion of craft breweries in Europe. A growing demand for craft beers (Aquilani et al., 2015) that offer a wide spectrum of full-bodied flavors and aromas, according to Kleban and Nickerson (2012) appropriately named - the "taste revolution", re-emerges as the traditional response to industrialization. Industrial breweries produce commercial, usually lager beers that just cannot satisfy its customers in more demanding taste rush desire. The fact that the industrial breweries produce large quantities of "plane" beer and craft breweries are small-capacity, but can produce different types of beer, depending on chosen malt, hops and yeast strains, makes them more appealing to the average taste-and-aroma-hungry consumer. The sudden expansion of craft breweries in Europe has been described in recent paper by Aquilani et al. (2015). Choi and Stack (2005) explain that craft beers are often perceived as higher quality than the commercial ones and that the consumers feel their preference and individualities are being by choosing craft beers. The uniqueness of tastes and ingredients combining into a recipe that substantially differs from the industrial beer attracts consumers to craft breweries the most (Kle-

ban and Nickerson, 2012; Gómez-Corona et al., 2016). The increasing number of microbreweries and brewpubs (about 30 in Croatia), microbreweries, and brewpubs affirms the popularity of craft and home brewing and establishes a completely new army of consumers.

### 2. The re-emergence of craft breweries and an upgrade of brewing constituents

As opposed to an estranged worker who cannot connect with the product or the labor invested in the industrial process (Marx, 1959), craftwork clearly manifest the labor invested in the final product. The tangibility of work results is one of the reasons why craft breweries concept is so appealing to many entrepreneurs. Craft breweries re-emerge the devotion and delicacy needed to brew a good beer. The attention to details, and the labor an average self-taught brewer must invest into this beverage we simply call beer, is tremendous. Craft brewers actually have to pay attention to all those little things industrialization took for granted. For example, the use of yeast: industrial breweries propagate and inoculate wort with yeast chosen for the flavors and aromas best suited for a certain beer type. Everything is done in phases, automated, and the room for contamination of wort or propagated inoculum is very small since macro-industries have closed fermentation systems. Apart from the obligatory Bavarian purity law and exceptional national legislations, a master brewer has the freedom to choose from the different variety of yeasts, hops and malts, adding, deducting or changing any of brewing parameters. The ability to choose from the variety of different hops, local grains, unconventional starch-rich ingredients, the exploration of adding local fruits, herbs, spices and vegetables in order to brew a unique and tasteful beer (Savastano, 2011; Donadini and Poretta, 2016) offers almost infinite

possibilities in expanding the conventional beer taste. Beer production has always been a craft and the ones who crafted this process have always been, appropriately, considered masters brewers. This is the case today. Regardless of the invested hard work and time, brewing has always been a noble call.

The main difference between craft beers and industrial ones are the varieties of different malts, different hops and yeasts used in the production process. The recognizable trade mark of craft breweries are small batches of beer, which allow them to experiment with ingredients, much easier than in industrial production. Craft scene calls attention to the aromatic note that raw materials add to beer. The already mentioned full-bodiedness and exotic tastes demand new hop varieties with special flavor signatures. This led to the cultivation of so-called flavor hop varieties: Equinox, Mandarina Bavaria, Azacco, Triple Pearl etc. (Craft beer and brewing, 2016). Even though it was mentioned before that craft beer consumers seek the return to the untouched, all-natural, all-domestic quintessence in the chosen glass of beer, it has to be mentioned that many of the ingredients are a bit genetically retouched. For example, there are so many yeasts to choose from, and many of them are genetically modified in order to give the best taste and exotic aromas. Hops and barley are also a bit modified, if not by genetic modification than by selection. All in all, there is a human intervention in all of this brewing.

In order to maintain the regular customers and attract new consumers craft and home brewing entrepreneurs introduce novelties all the time. Today's trends in craft brewing include some insane combination. Coffee, fruits, herbs, wine, chestnuts... these were all common adjuncts and spices used in brewing since the monks. Nowadays, different vegetables and hot peppers are the new trend in craft beer industry (All About Beer Magazine). Functional beer with more vitamins and minerals, sour beer obtained by using wild yeast and lactic acid bacteria are emerging new products in order to satisfy the more and more demanding consumers (Beer and brewing, 2017).

### 3. The evolution of (craft) beer consumers

As mentioned at the beginning of this paper, beer has been a loved and cherished drink for at least several thousands of years. At the beginning beer was just a coincidental mixture of barley and water, left to sit in the sun. We can say these were the original home beer breweries. This is one of the first fermentations in civilized (and civilized) worlds. Although beer's importance in ancient world has been unfairly neglected, having many investigations focused on wine production (Homan, 2004), today's scholars determined to acknowledge the existence and history of beer. However, there are evidence that beer was cherished and even worshiped at that time. For example, Sumerians even had a goddess of beer, named Ninkasi, and even has a hymn form beer drinkers (Homan, 2004). Babylonians had acknowledged the Code of Hammurabi that prescribed a few paragraphs engaging beer and brewing (Mark,

2011): "If a tavern-keeper (feminine) does not accept corn according to gross weight in payment of drink, but takes money, and the price of the drink is less than that of the corn, she shall be convicted and thrown into the water." "If conspirators meet in the house of a tavern-keeper, and these conspirators are not captured and delivered to the court, the tavern-keeper shall be put to death." "If a "sister of a god" open a tavern, or enter a tavern to drink, then shall this woman be burned to death."

According to some historical sources, described in Homan (2004), beer was the national drink of Egypt and Mesopotamia. This is because cereals were much more accessible than grapes. Systematic fermentation of fruit and grains upgraded the characteristics of civilization, helping it to transform from nomadic to agrarian society (Stone, 1991). The famous *Bavarian Reinheitsgebot* (purity law) was introduced in 1516. This law limited beer production only on barley malt and wheat malt was strictly forbidden in this process. This committed brewers to high quality raw material and protected consumers from enjoying a beer with different adjuncts (wheat, corn...). This law also aimed to ensure enough quantities of wheat for bread making, so the hunger would never be a problem. *Reinheitsgebot* is still in power (for bottom fermenting beers), but is slightly revised and known as the Provisional German Beer Law of 1993 (the *Vorlufiges Deutsches Biergesetz*). *Biergesetz* allows the addition of wheat and other regulated ingredients, but only in top-fermenting beers (ale beers) (Lam, 2015).

Historically looked at, brewing and breweries were imagined and propagated as an integral part of the community life (Lamertz et al., 2015). Beer consumption was a tool to provided the nourishment people needed. Being nutritious and microbiologically safer to consume, in comparison to water, beer consumption promised enjoyment and lack of hunger. The history of beer stretches over industrial revolution to modern ages (Fastigi et al., 2015). It was because of the industrialization and scientific discoveries that beer became the drink that we know today. Easier crossing of long distances without organoleptic and qualitative deterioration, bigger amounts of higher quality beer, the discovery of *Saccharomyces pastorianus* (formally known as *carlsbergensis*) yeast, in Carlsberg's laboratories (in 1883), made possible to produce "lager" beers for mass production (Fastigi et al., 2015).

The familiar environment and pleasant atmosphere almost all brewpubs offer, is something that invites people to come over again and again (Helaniemi, 2016). Historical legacy of old pubs and brew-house names add value to the whole craft beer experience and invite people to emerge from the contemporary and plunge down the historical memory lane. This too is one of the reasons why craft breweries are getting more attention. Consumer's curiosity is also a phenomenon that should be considered when talking about craft and home brewing. Namely, new beer styles and tastes attract young people and make them want to try different things. Special glassware for each beer type also provides a sense of sophistication and refinement. However, one cannot avoid the impression that craft beer enjoyment is a thing of prestige. The ultimate difference between the industrial lager consumer and a craft beer consumer lies in the sense of a luxury craft beer has to offer.

Craft beer is characterized with higher pricing range than industrial beer. Nevertheless, consumers are ready to pay more money for specialty beers. Aquilani et al. (2015) reported that wealthier consumers switched from premium to special or craft beer. By spending more money on luxurious beer, consumers actually drink less amounts of beer (Berkhout et al., 2014).

Even though the concept of craft beer is to be mostly consumed in pubs and bars on tap, some craft brewers bottle or even can their products and sell them in supermarkets, pubs or bars. In this case, packaging plays an important role in getting the attention from buyers. Packaging contributes to the uniqueness and diversity of craft beers. Besides, craft beers usually have very witty names and this is also a factor that makes them different from the industrial beer. Well played branding is of tremendous importance for craft breweries. All this packed together intrigues the buyer to try the new and colorful bottles of beer on the shelves (Craft beer: the global movement).

Lager style beer has been widely dispersed and is the most accepted beer style in every corner of the world. The fact that this style is so pronounced for beer lovers makes it less attractive to young, hip people who correlate lager with blue collars. In other words, this can be interpreted as expressing class identity (Olliffe, 2017). Nevertheless, the lightness, transparency and freshness of this beer is hard to achieve in craft breweries. Every wrong choice of any of the raw material – a wrong kind of malt, hops, water or yeast, even small shifts in temperatures or pH values, will be clearly palatable in lager beer. Therefore, however posh the craft beer is, lager will always be the one style that is hard to mimic in craft or home breweries. The spread and availability of lager beers is what makes some consumers stubbornly addictive to it and in deny of accepting any other beer style as good enough.

#### 4. Is craft beer any healthier than industrial?

The all-present information on health benefits of beer claim that moderate beer consumption can give additional boost to diligent beer consumers. Generally, beer does provide the body with nutrients, vitamins and minerals, dietary fibers, as well as a whole range of biologically active compounds that exhibit antioxidant activity, such as polyphenols (Preedy, 2009). Even though wine is often presented as superior to beer regarding antioxidant properties, the antioxidant potential of beer is equivalent to that of wine (Denke, 2000). In the old ages, while monks were still greatly engaged in the beer production, beer was used as a nutritive drink during the time of fasting. Low ethanol content adds to the beneficial health properties of beer. Although some scientists would disagree, saying that alcohol in general is carcinogenic to humans (WHO IARC group 1), many research proclaim that moderate beer consumption decreases the risk of diabetes, Alzheimer's disease, osteoporosis, heart and coronary problems, arthritis, hypertension, weight gain, and cholesterol.

Being rich in silicon, beer consumption helps in increasing bone mineral density, resulting in lower osteoporosis incidence (Sohrabvandi, et al., 2012; Health benefits of craft beer). Possible anti-mutagenic and anti-carcinogenic effects of beer have also been proposed by several authors (Arimoto-Kobayashi, et al., 1999; Kondo, 2000; 20 Nozawa, et al., 2004). However, excessive daily drinking or binge drinking of beer can lead to the development of different alcohol use disorders, as well as induce harmful health effects such as obesity, diabetes, allergy induction, increase the plasma concentration of uric acid, mutations, dementia (Sohrabvandi, et al., 2012). However, there are no studies that would put craft beer superior to the industrial, regarding their healing properties and overall health benefits. However, the fact that many craft breweries avoid filtration or pasteurization affects the retention of biologically active compounds (polyphenols) that are susceptible to higher temperatures and are prone to oxidization which significantly shortens the storage time. Furthermore, craft breweries have far less capacity for production and that puts them in a position to more readily respond to special consumer's, especially health-related, demands. This led to the development of low-calorie, gluten-free, low-alcohol, etc. beers (Denke, 2000).

#### 5. Future outlook and conclusion

Craft beer expansion will probably continue to grow. New and new additions, adjuncts, aromas and tastes will continue to attract young hip people whose egos will be nourished by the prestigious liquid in their glass. The craft battle is yet to start. In order to get a slice of a cake, some industrial breweries already started to produce beers that are marked as craft, showing elasticity in production and bending towards more special beers and the retailers will continue to enable more shelf space for craft beer. The propagation of craft breweries will peak at a point of saturation, and only the well established craft breweries will survive and keep their customers. However, industrial lager beer will always stay on top of the beer ladder and lager lovers will always outnumber the ever-so-different craft beer styles.

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