24. Fundamental research of craft beer made using deep ocean water

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1. Introduction

Deep ocean water is a next generation future resource and is being used in diverse fields. When added to food, the rich mineral content contained in deep ocean water enhances the taste and nutrition of food.

Currently, the most common fermented food in the world is alcoholic beverages. The history of alcoholic beverages dates back to about 9000 years ago. Alcoholic beverages have been made by mankind from such a long time ago and are still loved, drunk, and enjoyed by many people even today to the extent that its consumption is the third largest among beverages in the world.

Since beer has a variety of efficacies originating in yeast, and hop, which is a spice and produces the bitter taste of beer, appropriate intake of beer is helpful for health. However, the efficacies of yeast cannot be obtained from domestic beer because domestic beer undergoes a sterilization process in which yeast is also removed before shipment in most cases.

Draft beer has a problem in distribution because its shelf life is only 5 weeks at the maximum. However, deep ocean water has an efficacy of the effect of improving storability. Deep ocean water showed an effect to improve storability in seasoned dried radish slices, which has one of Korean patents. If the effect is grafted on beer, the shelf life of the existing draft beer may be extended.

2. Methods

In this experiment, pale ale was selected as the subject. Pale ale malt, Caramunich 3, Carared were used as malt, and Cascade and Centernial, which are commonly used for pale ale, were used as hops. The deep ocean water produced by a deep water company located in Goseong-gun was used for the experimental group and the service water of Goseong-gun was used for control group. The yeast used in the experiment was Safales-04, which is used for pale ale.

A total of five bears were brewed, as one control and four experimental groups. The control group was brewed only with the service water and the experimental groups were brewed with waters of hardness 100 (raw water 100), hardness 200(raw water 200), hardness 300 (raw water 100+mineral water 200), hardness 500(raw water 100 + mineral water 400), respectively. The control group and the beers of hardness 100, 200, and 300, respectively, were brewed on July 19 and the beer of hardness 500 was brewed on July 20. Each of the beers was subjected to primary fermentation at an average temperature of 28 ° C for 10 days in a fermentation tun. When the primary fermentation was completed, the beer was bottled by putting 20 g of sugar into a 1L PET bottle and putting the draught beer into the bottle. The secondary fermentation was carried out for seven days at an average temperature of 20°C.

3.Conclusion

In this study, to examine differences in craft beer according to hardness levels, four properties; aroma, appearance, flavor, and mouth feel were measured in 50 male and female adults using a 5-point scale.

Division	Deep ocean water beer	Service water beer
Aroma	230	190
Appearance	200	189
Flavor	225	195
Mouth feel	193	189

As can be seen in the above table, the scores of the deep ocean water beer are higher for all four properties; by 40 point for aroma, by 30 points for flavor, by 11 points for appearance, and by 4 points for mouth feel, and 85% of the respondents answered that they had the intention to buy the deep ocean water beer again.

Reference

1. Lee Ji-yeon (2016) Seasoned dried radish slice manufacturing method using deep ocean water 9p