Ageing profiling of craft beers: a sensorial and chemical overview.

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Aims

Craft beer has active yeast in the bottle whereas in commercial beer yeast is inactivated for product stability. This study investigated the changes occurring during the storage/ageing of six different beers: four craft (Weiss, Pilsner, Stout and Amber) and two commercial (Weiss and Pilsner). Beers were analyzed sensory and chemically over six months. Both craft and commercial beers showed modifications in their composition during the storage time, being the behavior similar for both. Ageing profiles were similar and craft beer showed the desired stability after storage time.

Introduction

Combination between different:

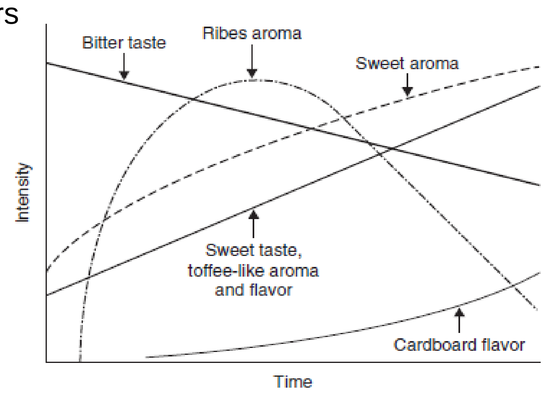
- ingredients
- processes
- packages
- marketing
- culture

Different types of beer → Different final flavor [1]

Consumer satisfaction:

- appearance
- alcoholic content
- nutritive value
- taste and aroma
- other parameters

Continuous changing state → When does the maturation ends and deterioration begins?



Different for each type of beer and for each consumer [2].

Methodology

Six different beers:

Craft Beer			
Nomenclature	Recipe	Bottle	Caps.
W33	Weiss	33 cl	metal
W75		75 cl	cork
P33	Pilsner	33 cl	metal
P75		75 cl	cork
S33	Stout	33 cl	metal
S75		75 cl	cork
A33	Amber	33 cl	metal
A75		75 cl	cork
Commercial Beer			
Commercial Weiss	Weiss	50 cl	metal
Commercial Pilsner	Pilsner	25 cl	metal

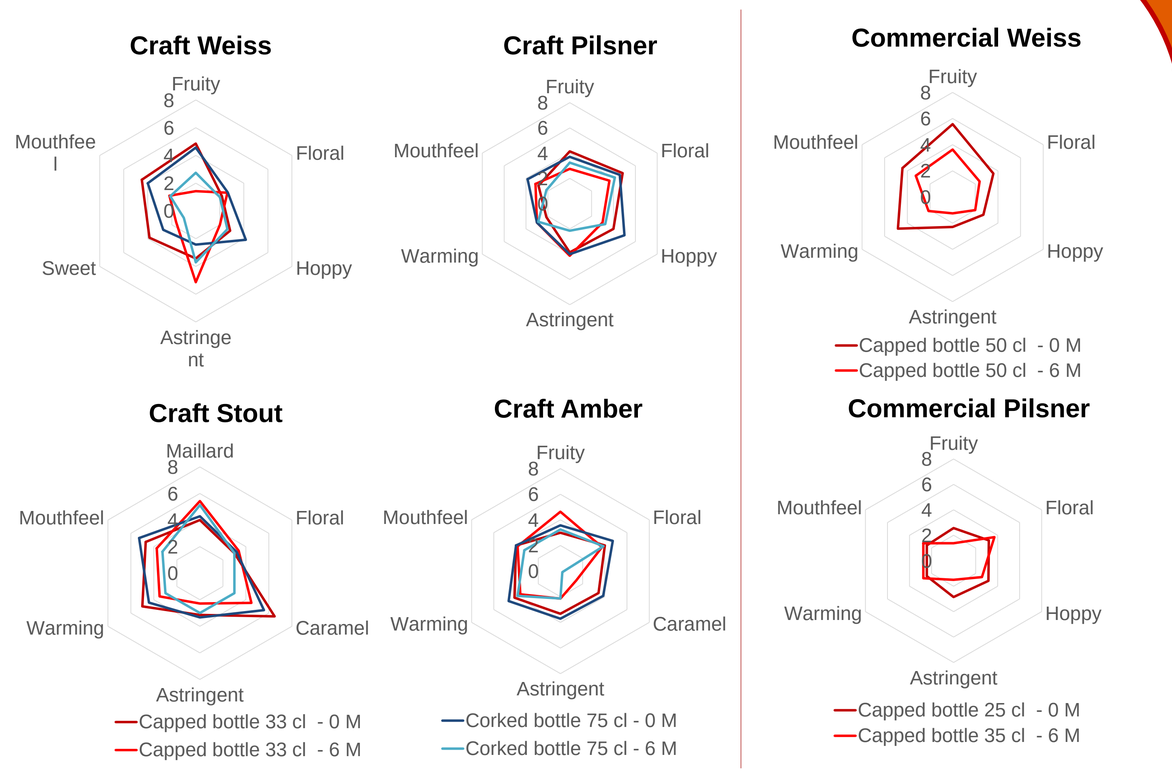
Sensory Analysis

- panel of 10 members
- one session per month
- Aspect, aroma, taste and mouthfeel were evaluated

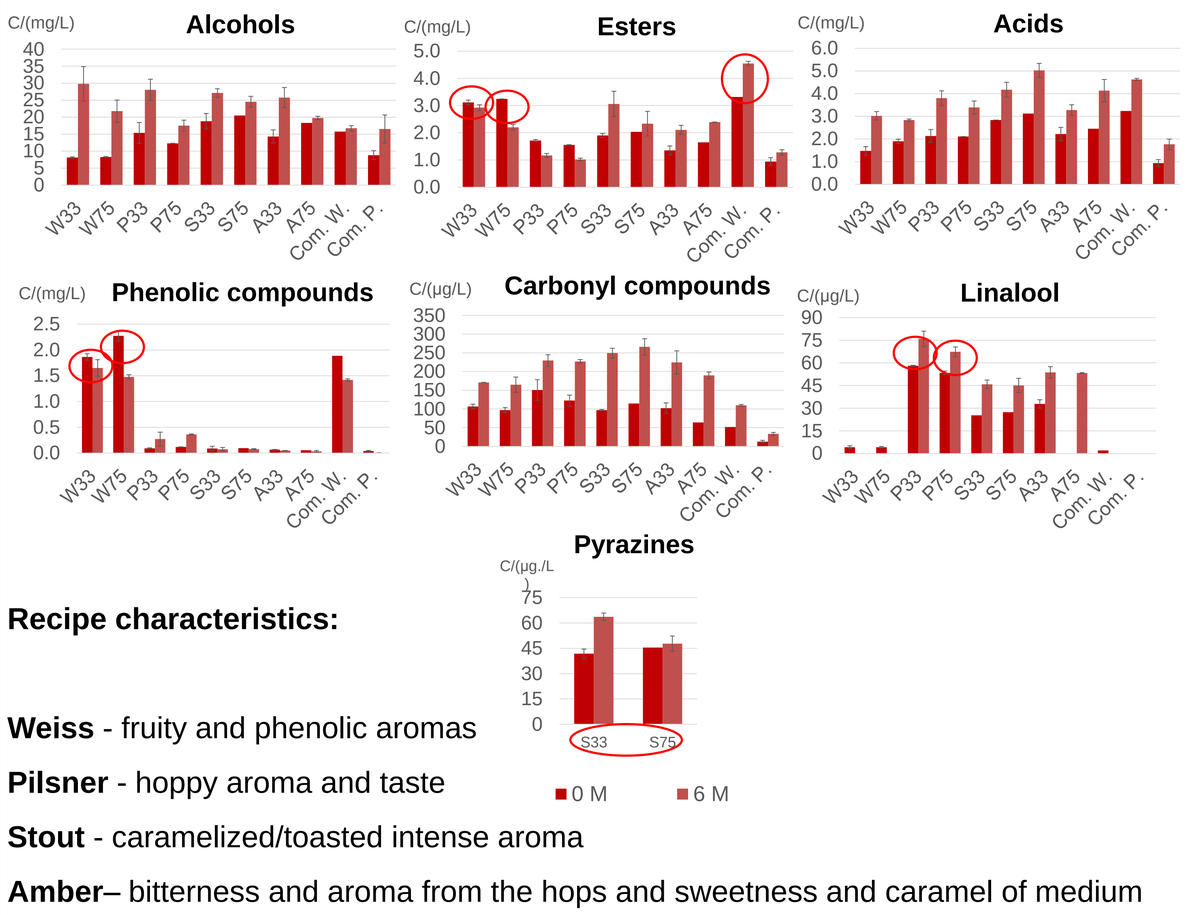
Chemical Analysis

GC-MS → Minor volatile compounds

Results



The results of sensory analysis were in line with the characteristics of each type of beer. Craft beers showed an aromatic profile much more intense than the commercial beers and had a similar behavior over the six months (as the commercial beers).



Recipe characteristics:

Weiss - fruity and phenolic aromas

Pilsner - hoppy aroma and taste

Stout - caramelized/toasted intense aroma

Amber– bitterness and aroma from the hops and sweetness and caramel of medium intensity. [3]

The results for minor volatile compounds analysis were in line with the aromatic profiles obtained by sensory analysis, as well as the characteristics of each type of beer.

The craft beers kept their volatile compounds associated with its characteristic aromas/tastes over a six month period.

Conclusions

The aromatic profiles and the results of minor compounds analysis were in line with the characteristics of each type of beer portrayed in the literature.

The results allowed to conclude that craft beers preserved their quality over six months, with the benefit of having more intense flavors and aromas than commercial beers.

This study allows the possibility of increasing the shelf life of craft beers that corresponds to one of the biggest problems of this type of beer production.

References

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