5th International Conference of the South-East European Chemical Societies ICOSECS 5

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The XIX Congress of the Chemists and Technologists of Macedonia

Chemical Sciences at the European Crossroads

Organized biennially by the

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ICOSECS 5 is an event of the

European Association for Chemical and Molecular Sciences (EuCheMS)

ICOSECS 5 is sponsored by the

Organisation for the Protection of Chemical Weapons (OPCW)

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EFFICIENCY OF COMERCIAL ENZYMATIC PREPARATIONS IN GRAIN HYDROLYSES FOR PREPARATION OF SUBSTRATES FOR ALCOHOLIC FERMENTATION

Srdjan Mladenović, Branislav Nastasijević, Srdjan Miletić

Faculty of Chemistry, Studentski Trg 12–16, Belgrade
srckey@EUnet.yu

Basic substrate for beer production is produced by enzymatic transformation of unsaturated malt extracts and other raw materials rich with carbohydrates that degrade into simpler compounds. The chemical composition of malt (mainly sugars and amino nitrogen) is of crucial importance for fermentation process and therefore for beer quality.

Unsaturated malt extract might be supplemented with others unmalted grain (like rice, corn grits and brewers' grits etc) In those mixtures the fraction of malt is smaller and therefore hydrolytic enzyme levels are lower and need compensation. For that reason, we used commercial enzyme preparation (i.e. thermo stabile amylases, proteases and glucanases of microbial origin)

In this study, we investigated the optimal composition of substrates (made from malted and unmalted raw material) and tested optimal enzyme concentration for most eficient substrate degradation.

In order to establish these conditions, we determined basic chemical indexes of malt extract, such as: dry substance, ash, C, H, N and S, α-amino nitrogen, sugars and total proteins. Results show, that increasing the fraction of unmalted raw-material, decrease the amino-nitrogen in malt and in beer.

Adding enzymatic preparations to unmalted material significantly improve level of hydrolization and therefore beer quality.