Physicochemical and sensory (aroma and colour) characterisation of a non-centrifugal cane sugar (“panela”) beverage

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**Highlights**

- Six odour-active volatiles were identified in non-centrifugal cane sugar (NCS) beverage.
- Key aroma compound in NCS beverage was 2-methyl pyrazine.
- There were no significant differences in aroma and colour in the samples.
The geographical origin of NCS samples did not influence pH and °Brix values.

Abstract

Non-centrifugal cane sugar (NCS), also called “panela”, is a high carbohydrate-content food obtained by boil evaporation of the sugar cane juice. This study was undertaken to assess physicochemical properties and sensory characteristics of panela beverage at two different concentrations. Evaluation of pH, °Brix, and colour (tristimulus colorimetry) was carried out in all panela drink samples. In order to characterise the odour-active volatiles of the beverage, a simultaneous steam distillation-solvent extraction method was applied using a mixture of diethyl ether-pentane (1:1, w/w) as solvent. The Aroma Extract Dilution Analysis revealed the presence of six odour-active compounds, being 2-methyl pyrazine the key aroma compound of this beverage. PCA (Principal Component Analysis) showed that there were no differences in the aroma and physicochemical properties (pH and °Brix) with respect to the geographical origin of analysed samples; however colour depends on heating during processing of NCS.

Chemical compounds studied in this article

- 2-Methylpyrazine (PubChem CID: 7976);
- 2,5-Dimethylpirazine (PubChem CID: 31252);
- Furfural (PubChem CID: 7362);
- Propanoic acid (PubChem CID: 1032);
- 2-Methylpropanoic acid (PubChem CID: 6590);
- 2-Furanmethanol (PubChem CID: 7361)

Keywords

- Odour-active volatiles;
- Simultaneous steam distillation-solvent extraction;
- Saccharum officinarum Linné derivative;
- Non-centrifugal cane sugar (NCS);
- Jaggery

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