

# Survey of Plant-based Fermented Beverages Available on the Irish Market

MONITORING & SURVEILLANCE SERIES



# Survey of Plant-based Fermented Beverages

## Available on the Irish Market

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## Glossary

<b>ABV</b>	alcohol by volume
<b>AOAC</b>	Association of Official Agricultural Chemists
<b>CPAL</b>	Cork Public Analyst's Laboratory
<b>EU</b>	European Union
<b>FIC</b>	food information to consumers
<b>FSAI</b>	Food Safety Authority of Ireland
<b>GCFID</b>	gas chromatography flame ionisation detection
<b>HSE</b>	Health Service Executive
<b>INAB</b>	Irish National Accreditation Board
<b>V/V</b>	volume per volume concentration of a solution



## Summary

The popularity of unpasteurised plant-based fermented beverages is increasing in Ireland and Europe. Many of the fermented plant-based beverages available in Ireland are produced by relatively small-scale artisanal food businesses utilising a variety of production methods and materials. The variability in the production processes, along with different storage and sales conditions, can have a significant impact on the quality and safety of the final product.

The Food Safety Authority of Ireland (FSAI) carried out a survey of the Irish market for unpasteurised plant-based fermented beverages, including kombucha, kefir (water-based), and ginger soda. The objective of the survey was to determine the level of compliance of these products with respect to EU and Irish food labelling and claims legislation.

Of the 32 samples analysed, 4 (13%) were found to contain undeclared alcohol at concentrations that exceeded the labelling threshold of 1.2% alcohol by volume (ABV). In addition, 29 (91%) of these samples were found to be associated with unauthorised nutrition or health claims.

## Background

The growing popularity of unpasteurised plant-based fermented beverages in Ireland has been evident in recent years. During the production of plant-based fermented beverages such as kefir, kombucha, and ginger soda, bacteria and yeast ferment sugar to produce by-products such as acid and alcohol. Many of these beverages are sold as unpasteurised beverages, which means that under certain conditions, residual fermentation can still occur during handling and storage, resulting in an accumulation of alcohol to significant levels that must be declared. Sub-optimal conditions of production, storage and handling can compromise the safety and quality of fermented plant-based beverages. Because some of these beverages (especially unpasteurised beverages) are produced on a small scale by operators with relatively little experience in the area, and because the incorrect production and storage of these beverages can lead to the accumulation of significant concentrations of alcohol in the final product, the FSAI has developed guidance to assist in the safe and consistent production of plant-based fermented products.

It is difficult to estimate the number of different fermented beverages currently available on the Irish market, with some brands producing several flavoured versions of the same beverage. The production of fermented plant-based beverages can be broadly classified into artisanal production and commercial production. Artisanal production is characterised by smaller batches; smaller scale, with products generally sold in cafes or at country markets. Commercial production involves larger batches; bigger scale, with national or international distribution sales networks established.



The Food Information to Consumers (FIC) Regulation (EU) No 1169/2011 requires that any food with an alcohol content greater than 1.2% must declare the alcoholic strength by volume (ABV).

Along with the labelling requirements and depending on the concentration of alcohol present, food products containing significant concentrations of undeclared alcohol can pose a health risk to vulnerable consumers such as children and pregnant or breastfeeding women who may unwittingly consume them. In addition, the inadvertent consumption of alcohol may also have serious consequences for airline pilots, machinery operators, as well as restricted or professional drivers who are obliged to avoid alcohol during their working hours for safety reasons associated with their profession.

The presence of greater than 1.2% alcohol in a beverage may also have implications with respect to revenue legislation. (<https://www.revenue.ie>).

Nutrition and health claims legislation (Regulation (EC) 1924/2006) relates to claims made about food products, and only authorised claims may be associated with a particular food.



## Objective of the survey

The objective of the survey was to determine the regulatory compliance of plant-based fermented beverages available on the market in Ireland with EU and Irish food labelling and claims legislation, in particular the legal requirement to declare alcohol content above 1.2% ABV.

## Sampling and analysis

For the purpose of this survey, the number of beverages selected (32) was considered representative of the current fermented plant-based beverages market in Ireland and samples were collected by environmental health officers of the Health Service Executive (HSE).

Laboratory analysis was conducted by the Public Analyst's Laboratory in Cork (CPAL) and was based on AOAC (Association of Official Agricultural Chemists) methods No. 973.23 and No. 984.14. These analytical methods can detect and quantify the concentration of ethanol in beverages using gas chromatography flame ionisation detection (GCID) within the range of 0.3–20% V/V. This chemical testing method is accredited to ISO 17025 by the Irish National Accreditation Board (INAB) registration.

## Results

The four beverages with undeclared alcohol detected had a range of 1.5–3.9% alcohol present. This is significant given that many beers sold in Ireland contain 4–5% alcohol. Examples of unauthorised nutrition and health claims detected include “contains live cultures”, “full of goodness”, and “live enzymes and amino acids”. Examples of general labelling non-compliances include missing mandatory label information, such as the name/address of the business, nutrition table, missing list of ingredients, or missing best before/use by date. Examples of inappropriate labelling of storage conditions include “best served chilled” or “keep refrigerated after opening”, or labelling with missing storage instructions.

Parameter	Non-compliant samples
Alcohol (% ABV)	13% (4/32)
General labelling	75% (24/32)
Nutrition and health claims	91% (29/32)
Inappropriate storage instructions	56% (18/32)



## Conclusions

The results of this national survey of plant-based fermented beverages identified a number of regulatory non-compliances, some of which can have safety implications and are therefore a source of concern. The mandatory declaration of alcohol at concentrations above 1.2% ABV, and the unauthorised use of nutrition and health claims and adherence to general labelling rules, are regulatory matters that must be borne in mind by all producers of fermented beverages. In addition, the provision of information on the appropriate storage, handling and display of these products, especially when sold unpasteurised, must be a priority for manufacturers of these products, as it has a direct impact on their safety. The General Principles and Requirements of Food Law (Regulation (EC) No 178/2002) stipulates that “Food shall not be placed on the market if it is unsafe.”

One product was found to contain 3.9% alcohol, just less than the alcohol level of the average beer in Ireland (4.3%). However, even though these products are generally not consumed to the same extent as beer, the consumption of low levels of alcohol can pose a safety risk to some consumers, or may go against their religious or cultural beliefs. In addition, for safety reasons, pilots and certain categories of licensed vehicle drivers and machine operators are restricted to very low concentrations of blood alcohol. Therefore, the inadvertent consumption of any level of alcohol by these professionals can jeopardise public safety, and possibly these professionals’ careers.

In order to ensure the safety of fermented plant products and help the food industry to comply with EU and Irish food law, the FSAI has developed guidance for the safe and consistent production, storage, handling, and display of plant-based fermented products. This guidance was developed in consultation with stakeholders and is targeted at any food business intending to place such products on the market in Ireland. Controlling the production process is vital to ensuring that these fermented products are safe and that labelling is accurate. However, proper post-production handling and storage is also important in order to limit continued alcohol production where the product is not pasteurised.

## Relevant food law

- Provision of Food Information to Consumers: Regulation (EU) No 1169/2011 (S.I. No 556 of 2014)
- Nutrition and Health Claims: Regulation (EC) No 1924/2006 (S.I. No 11 of 2014)
- General Principles and Requirements of Food Law Regulation (EC) No 178/2002. (S.I. 747 of 2007)





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