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FERMENTATION OF FRUIT WINE AND ITS QUALITY ANALYSIS:

A REVIEW

ABSTRACT

Fruit is an essential part of your diet using essential part of vitamin and minerals that contribute to overall strength for your health. Fruit wines are undistilled alcoholic beverages usually made from grapes or other fruits such as peaches, plums or apricots, banana, elderberry, or black currant which are nutritive, more tasty, and mild stimulants. These fruits undergo a period of fermentation and aging. They usually have an alcohol content ranging between 5 and 13%. Wines made from fruits are often named after the fruits. No other drinks, except water and milk, have earned such universal acceptance and esteem throughout the ages as has wine. Wine is a food with a flavor like fresh fruit which could be stored and transported under the existing conditions. Being fruit-based fermented and undistilled product, wine contains most of the nutrients present in the original fruit juice. The nutritive value of wine is increased due to the release of amino acids and other nutrients from yeast during fermentation. Fruit wines contain 8–11% alcohol and 2–3% sugar with energy value ranging between 70 and 90 kcal per 100 ml. The present explained about the fermentation of wine and its quality analysis. In this present review, we discussed about fermentation, history of fermentation, Saccharomyces cerevisiae and alcoholic fermentation, fermentation of fruit juice into wine, classification of wine, factors influencing fermentation and wine quality, and Indian wine market.

Keywords: Fermentation, fruits, wine, wine quality, yeast

INTRODUCTION

Fermentation is a viable technique in the development of new products with modified physicochemical and sensory qualities, especially flavor and nutritional components. Alcohol and acetic and lactic acid fermentation are important for quality in production. Of these, alcoholic fermentation is widely employed for the preparation of beverages in which alcohol is major constituent. Fermented beverages have been known to humankind from time immemorial. An alcoholic beverage is a drink that contains ethanol. These are divided into three general classes for taxation and regulation of production, namely, beers, wines, and spirits distilled beverages such as whisky, rum, gin, and vodka. Beer is made by fermentation of starch combining yeast and malted cereal starch, especially

barleycorn, rye, wheat, or blend of several grains and usually flavored with hops. It contains 4–8% alcohol and its energy value ranges between 28 and 73 kcal per 100 ml. Distilled alcoholic beverages are produced by distilling ethanol by fermentation of grains, fruits, or vegetables. They are made from sugarcane juice, molasses, fermented mash of cereals and potatoes, and fermented malt of barley and rye. The alcohol content in distilled alcoholic beverage ranges between 40% and 60%.

Fermentation is a relatively efficient, low energy preservation process which increases the shelf life, and decreases the need for refrigeration or other forms of food preservation technology. It is, therefore, a highly appropriate technique for use in developing countries and remote areas where access to sophisticated equipment is limited. Fermented fruit wines are popular throughout the world, and in some regions, it makes a significant contribution to the diet of millions of individuals. The possibility and the use of pineapple for the production of wine will create employment, income generation for farmers, and address the post-harvest losses associated with the glut on the local market in India.

Alcoholic fermentation leads to a series of by-products in addition to ethanol. They include carbonyl compounds, alcohols, esters, acids, and acetals, all of them influencing the quality of the finished product. The composition and concentration levels of the by-products can vary widely. There is an abundance of exotic tropical fruits in India with the potential to be used by the food industry. Different new uses and new methods for processing tropical fruits need to be developed to minimize production losses, generate more profits, and promote the sustainable use of biomes. One possible use of these fruits is in the production of wines from various tropical fruits. There are many studies in the literature that demonstrates the feasibility of using fruits to produce alcoholic beverages. There are several Indian fruits with the potential for use in the production of wines.

Wine can be made from a wide array of fruits, so long as there is enough sugar content in the fruit to convert into alcohol during the fermentation process. Fruits that can be made into wine range from the familiar (blackberries and pineapples) to the exotic (durians and mangosteens). One of the most widely produced non-grape fruit wines is cider, or “Apple wine,” which is made from fermented apples. Apple wines are prolific throughout England and the rest of the UK as well as in Germany, France (Brittany and Normandy), Spain (Asturias, Basque Country, and Galicia), Ireland, Argentina (Patagonia and Mendoza), and Australia (Tasmania). Plum wine is often paired with fruit-based desserts or drizzled over fresh oranges in traditional sushi bars. Plum wines can also be used in cocktails either with soda water in spritzers or as a complement to shochu, which is a spirit made from distilled rice, barley, or sweet potatoes. While apple and plum wines are produced on a commercial scale, the craft of making wines from other fruits and berries is more commonly practised among home winemakers and artisans making small batch

libations from locally sourced fruit. When dealing with fruits other than grapes, sugar may need to be added to spur the fermentation process in the event that the fruit does not contain enough natural sugar to ferment on its own in the presence of yeast. Some fruits such as cherries, raspberries, strawberries, and pineapples are also very high in acid, which can translate into a very sour tasting wine. In these cases, sucrose and wáter can be added to help counter the fruit's tart acidity. Fruit and berry wines are rarely available in traditional wine or liquor stores but can be found at farmer's markets and fairs throughout the country.

Wine is an alcoholic beverage made by fermenting grape juice. Although the juice of other fruit, berries, and vegetables can be fermented to create alcohol, fruit wines are generally qualified by the name of the product used, such as gooseberry wine and blueberry wine. The word "wine" when used alone refers to an alcoholic beverage made from grapes. Wines come in various colors (red, white, and rose) and many types, which include dry and sweet, still and sparkling, and wines fortified with grape spirit (brandy). There are also many wine-based drinks, such as wine coolers and offering peach, kiwi, and strawberry wines. There are many different styles of wine, allowing wine to satisfy a wide range of individual tastes and occasions and permitting wine to accompany many styles of food. Most table wines are dry in the technical sense that they contain no residual sugar because all the sugar that was in the grapes (or added to the must) has been fermented out. Even so, wines can feel sweet in the mouth because of their fruit flavors, and many varietals such as chardonnay, shiraz, and zinfandel have a sweet fruit dimension to them.

FERMENTATION

Fermentation is biotechnology in which desirable microorganisms are used in the production of value-added products of commercial importance. Fermentation occurs in nature in any sugar-containing mash from fruit, berries, honey, or sap tapped from palms. If left exposed in a warm atmosphere, airborne yeasts act on the sugar to convert it into alcohol and carbon dioxide. The making of wines and beers uses this biotechnology under controlled conditions. Alcoholic beverages have been produced for centuries in various societies. They are often central to the most valued personal and social ceremonies of both modern and less literate societies. In such traditional ceremonies as child naming, marriage feasts, and funerals, alcoholic beverages are often present. In Africa, maize, millet, bananas, honey, palm and bamboo saps, and many fruits are used to ferment nutrient beers and wines. The best known being kaffir beer and palm wines.