

RECOVERY ROSE PETALS " ROSA CENTIFOLIA " IN THE FORM OF SYRUPS AND LOW ALCOHOLIC BEVERAGES

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Abstract

This study refers to the possibility of rose syrup utilization, the so called "wine", realized from spontaneous fermentation. There have been analyzed the most representative physico-chemical and microbiological properties using customary methods of analysis. Because the alimentary value of this product is given by its chemical composition and by the alimentary certainty by the microbiological loading, this study used the results of the previous researches concerning the physico-chemical and microbiological properties of the rose petals, in order to explain their dynamics during the fermentation. It is recommended the "rose wine" consumption, due to its special sensorial quality and of its degree of accessibility of the raw material – rose petals Rosa centifolia, that develop properly in the culture and also in the spontaneous flora.

An alcoholic fermentation controlled could lead to the getting of some stimulating beverages, with a limited content of alcohol.

Keywords: syrup, the rose petals, spontaneous flora

1. INTRODUCTION

Rose flowers are extremely loved hanks to their powerful smell and are cultivated in gardens and parks.

The petals include volatile oils, alcohols and terpenic aldehydes, tamins and mineral salts and salts of malic and tartaric acids. Their smell depends on the volatile oils which exist in small quantities, about 0, 04%. [2]

The characteristic smell is given by the mixture of geraniol, citronellol, comprised in the volatile oil. The extract from the rose petals is used as fragrance, having the most widespread use in perfumery.

The petals can be used in getting the syrup and after a spontaneous fermentation in getting the so called "wine". The rose syrup is being prepared from the petal juice where sugar dissolves. Sugar dissolving can be realized in hot or cold water.

These syrups can be used for preparing cooling drinks, jellies or for culinary purposes in getting the cakes.

A new direction in the rose syrup utilization is the getting of spirits by spontaneous fermentation of the syrup.

In order to satisfy the man's water needs, it is required a partial substitution of water with products that contain great quantities of water and that are agreeable during the consumption.

At the same time, these products are aimed at being a way for introducing in the human body necessary substances for healthy nourishment. Juices obtained from fruit and plants can be used for the purposes mentioned above. Moreover, it is being manifested the tendency of processing these juices in order to extract and preserve the valuable substances contained. By the fermentation of these juices are being obtained low-alcohol beverages with stimulating, invigorating, antitoxic, diuretic action.

Alcohol influences directly the functions of the digestive and circular apparatus and of the nervous system. The small doses activate salivary and gastric secretions and cause an increase of the pancreatic enzyme synthesis, contributing to fats saponification. It also stimulates the stomach shrinkages, favors digestion and absorption and adjusts the pH of gastric juice.

Rose oil calms and maintains the emotional center of the heart, giving a sensation of happiness and a general state of good. Rose

water is obtained by decantation after the separation of the ethereal oil. Mixed up with white wormwood infusion, it fights against heart, gastrointestinal and back pains. Simple, it can be used for ocular lavages, with the help of a cotton pad or sterile compresses are put in the case of ocular disease, toothaches, eczema and rash.

Rose oil is also used especially for balancing skin PH, having the role of improving vascularization and the metabolic processes from the cells. Thanks to its antiseptic effects it is frequently used in the treatment of infections caused by viruses, bacterium and fungus that have resistance to antibiotics. It revigorates the tired skin, offers tonus to the skin, an enviable one, it diminishes the wrinkles, it slows down the process of ageing[1].

The diuretic action of the wine increases proportionally to the content of potassium at a certain level. At the physico-chemical evaluation of the petals from which we have obtained a low-alcohol beverage, the prevalent element in the calcination has been the potassium with values between the limits of 120-742mg/100g in accordance with the agrotechnics used and the period of ingathering.

2. MATERIALS AND METHODS

The stages in the achievement of the alcoholic beverage from roses are:

a - the getting of the roses syrup

b - the fermentation of the syrup

a - In order to prepare this syrup there have been used petals of sweet roses: fresh, dried or deep-frozen, cutting off the white-yellowish part with the help of some scissors.

Over the petals we added citric acid (1 kilo of petals: 7-8 g citric acid). The mixture is rubbed by hand and we realize that the petals become red and the specific juice starts to let out. Separately, it is prepared a sugar syrup, in hot, from 1 kilo sugar and 1 liter water. The syrup cooled off at 35-40°C is poured over the mixture of petals and citric acid and it is left to

soak for 24 hours. When the time has expired, it is filtered and then compressed. The sensitive parameters (taste, smell, colour, aroma), the chemical parameters (the content of reduced sugar, the acidity and the content of C vitamin) and the microbiological parameters (the total number of germs, the total number of yeasts and molds) analyzed by using specific analysis represent another work object [3].

b - Rose syrup obtained in this way, has been dosed in glass vessels provided with fermentation valve and maintained at thermostat at 25°C, for 3 months, period when the clearly happened at a period of 1 month. The alcohol beverage obtained has been subject to specific physical and chemical analysis and examined organoleptic.

3. RESULTS AND DISCUSSION

Results organoleptic examination, analysis and physicochemical methods [4], are presented in Table no 1

Table. 1. The results of physico-chemical analysis

| Features | Method of analysis | Value | Value STAS STP 29/92 |
|-----------------------------------|-----------------------|--|----------------------|
| Appearance | STP 29-92 | Clear liquid with slight opalescent without gelatine consistency | - |
| Color | STP 29-92 | Uniform red-violacee similar of syrup that came from. | - |
| Odor | STP 29-92 | Well stated rosy | - |
| Taste | STP 29-92 | Like sweet wine typical tartish | - |
| Alcoholic strength, %vol at 20 °C | STAS 184/2-87(PSA-02) | 9.4 | 9.4 |

| | | | |
|--|------------------------|--------|-------------|
| Total acidity [g ac.tartaric/l] min | SR 184-5/1997 (PSA-04) | 10.98 | 4.5 |
| Volatile acidity [g acetic / l max] | SR 184-5/1997 | 0.828 | 1.23 |
| Aldehydes content [g/l alcool anhidru] | PSA-05 methromatograph | 0.0212 | traces -0.1 |
| Methanol [g/l alcool anhidru] | PSA-05 methromatograph | 0.0727 | 0-0.2 |
| Higher alcohols Content [g/l alcool anhidru] | PSA-05 methromatograph | 0.1801 | 0.15-0.5 |
| Content esters [g/hl alcool anhidru] | PSA-05 methromatograph | 9.74 | - |
| Total sugar [g/l], as a invert sugar | 6182/17-73 | 74.1 | - |
| Total extract [g/l]min | 6182/9-80 | 217 | 16 |
| Ph-ul[unitati de pH] | pH-metre | 3.86 | 2.8-3.8 |
| Density [g/cm ³ at 20 °C] | Meth.picnometre | 1.0285 | - |
| Reducing sugar [g/l]min | 6182/18-81 | 73 | 15 |

4. CONCLUSIONS

By analyzing the obtained values we may draw the following conclusions:

- thanks to the 94% (volume) alcohol content, the analyzed beverage joins the wine category, and the values of the analyzed parameters have been compared to those from STP20/92 for the “thick wine”.

- the total acidity presents an increase of 20.244, compared to the minimum value stipulated in STAS; and this happens due to the enrichment of the substratum able to ferment by sugar addition in the stage of syrup under the influence of fermentation.

- the content of reduced sugar is 4.86 higher, still due to the supplementary addition of sugar, this led to the growth of the total dry extract with 13.56, improving the corpulence and the unctuousity.

- the toxic compounds (methanol, aldehydes, superior alcohols) are within the accepted limits.

As a conclusion, it is recommended the “rose wine” consumption, due to its special sensorial quality and of its degree of accessibility of the raw material – rose petals *Rosa centifolia*, that develop properly in the culture and also in the spontaneous flora.

An alcoholic fermentation controlled could lead to the getting of some stimulating beverages, with a limited content of alcohol.

5. REFERENCE

1. Kreis P., Mosandl A., 1992, Chiral compounds of essential oils: Part XII. Autenticity control of rose oils, using enantioselective multidimensional gas chromatography, *Flavour And Fragrance Journal* 7,(4) 199-203.
2. Wollenweber E., Doerr M., 1993, Flavonoid aglycones as glandular products in *Rosa centifolia* cv. *Muscosa* and in the *Rubus phoenicolasius* *Zeitschrift fuer Naturforschung*, Section C., *Poiosciences* 48,(11-12), 956-958.
3. Nicolescu C., Buruleanu L., Avram D., 2005, Evolution of the Sensitive, Physico-chemical and microbiological Properties of the Eatable Rose Petals (*Rosa centifolia* L.) in Order of Their Alimantar Valorification, Agricultural University-Plovdiv, *Scientific Works*, vol I (6), 415-420.
4. Bratu M., Avram D., *Chimia si analiza alimentelor*, Ed. Printech, 2006, Bucuresti