ASSESSMENT OF THE QUALITY PARAMETERS OF THE ALCOHOLIC DISTILLATE PRODUCED BY GRAPE VARIETY "PERLA" CULTIVATED IN DURRES.

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The study was conducted on the alcoholic distillate produced by grape variety "Pearl", cultivated in Pearlat-Durres area during 2010. Perla grape cultivated in red-gravel type field, that was treated with lime, with 65% relative humidity, annual average temperature 11.5 °C; the average temperature of vegetation of vine 17.53 °C, and after the application of chemical and organic fertilizer according to a specific scheme was produced the fermented material with the parameters 9% vol alcohol, total acidity 7.5 gr/lt ac.tartrik and volatile acidity 1.5 gr /lt acetyc acid. The distillate obtained by alcoholic fractionation was aged in hermetically sealed glass container in the presence of oak Q.robur, for 1 year. According to the analytical parameters assessment conducted by official methods, by OIV and REG-CE 2870/2000, with GC-MS and GC-FID, on the fresh distillate and maintained in the presence of oak, according to the method prescribed by the current European regulations, the alcoholic distillate produced by grape variety Perla represents: Methyl alcohol content of 0.17 ml% ml anhydrous alcohol; Aldehyde acetic 35.5 mg% ml anhydrous alcohol; Ethylacetat 182.0 mg% ml anhydrous alcohol; Superior alcohols 167 total, 5 mg% ml anhydrous alcohol; Ethyl capronate 1.90 mg% ml anhydrous alcohol; linallol oxide trans furanic 0.20 mg% ml anhydrous alcohol; Geraniol 0.96 mg% ml anhydrous alcohol; the organoleptic assessment shows that the distillate presents pronounced aroma of flowers, which intensified after a year of ageing in oak presence. The flower aroma is attributed to the variety and the ageing time.

Key words**:** Alcoholic distillate, Grape variety Perla, Geraniol, Superior alcohol, Ethyl capronate, Q.robur, Aldehyde acetic.

INTRODUCTION

Pearl or as known in the world with the nomination Perla von csaba is a white grape variety with very early maturity originating from Hungary, but for a long time it is cultivated in Albania. Is produced by grafting the variety Madeleine Angevine x Muscat Courtillier and is highly susceptible to frost. Although the cultivation of this variety is problematic because of the thin-skinned grains of the grape. Cultivation of this variety in our country requires specific climatic and soil conditions, in accordance with the requirements of this plant for its growth and development selected ecosystem best meets these conditions. Best organoleptic characteristics make this variety to be very congenial in the production of a characteristic Albanian drink such as Raki, to which through the process of fractioned distillation of fermented grape must pass the aromatic compounds derived from grapes and those of taste the odor formed during the fermentation process. Raki was first produced from the residue of grapes left over from wine making. For good quality raki, is preferred the seedless raisins without reins.

MATERIAL AND METHOD

The study was conducted on the alcoholic distillate produced by grape variety "Pearl" cultivated in Pearlat-Durres area during 2010. Perlat-Durres area is characterized as part of the Mediterranean climate zone, where the sum of actionable temperatures during the year is 3705 °C, the annual aktive sun is 2098 hours / year and the average annual rainfall is 743mm, of which 385mm rainfall ocure during vegetation. The average annual temperature in the area is 11.5 ° C, while the average temperature during the the vegetation vine is 17.53 ° C with 65% relative humidity. Perla grape is cultivated in red-gravel type field, that was treated with lime, and after the application of chemical and organic fertilizer according to a specific scheme was produced the raw material that after alcoholic fermentation form the fermented material. This variety has its plant time during the months March-July and irrigation requirements in the months of May-June, it should not be watering before harvest.

After the harvest in 20 july, the selected raw material is in good condition, the grape undergo to the mechanical analysis, the determination of acidity, the sugar content and then is suppressed according to the raki production. The determination of the percentage of sugar with refractometer is based on the relationship between the concentration of soluble dry matter and the coefficient of the refraction of light, the used refactometre shows brix degree. Fermentation is monitored daily by measuring

the density and temperature, after preparing the frementated material it goes to fractional distillation. The distillate obtained by alcoholic fractionation was aged in hermetically sealed glass container in the presence of oak Q.robur, for 1 year. Analytical methods used for determining the alcoholic degree, total acidity, determining furfurolit and determination of higher alcohols on Rakia produced, performed according to the methods defined by official methods OIV and REG-CE 2870/2000, with GC-MS and GC-FID, on the fresh distillate and maintained in the presence of oak, according to the method prescribed by the current European regulations.

Gas chromatographic assays of volatile compounds may prove particularly interesting as a means of determining both the origin of the raw material used in the distillation and the actual conditions of distillation. Some spirits contain other volatile components, such as aromatic compounds, which are characteristic of the raw materials used to obtain the alcohol, of the aroma of the spirit drink and of the special features of the preparation of the spirit. These compounds are important for evaluating the requirements set out in Regulation (EEC) No 1576/89.

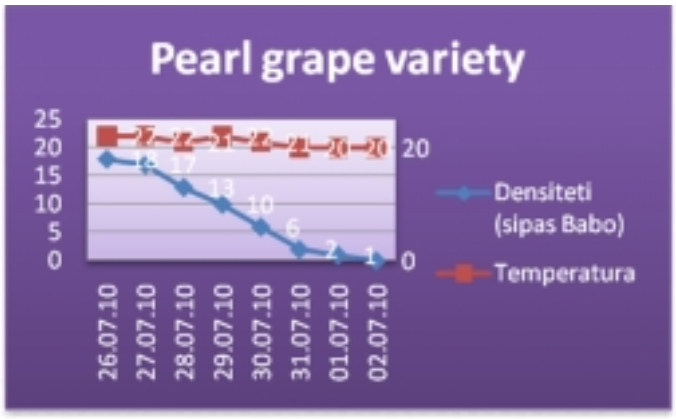
Congeners in spirit drinks are determined by direct injection of the spirit drink, or appropriately diluted spirit drink, into a gas chromatography (GC) system. A suitable internal standard is added to the spirit drink prior to injection. The congeners are separated by temperature programming on a suitable column and are detected using a flame ionisation detector (FID). The concentration of each congener is determined with respect to the internal standard from response factors, which are obtained during calibration under the same chromatographic conditions as those of the spirit drink analysis.

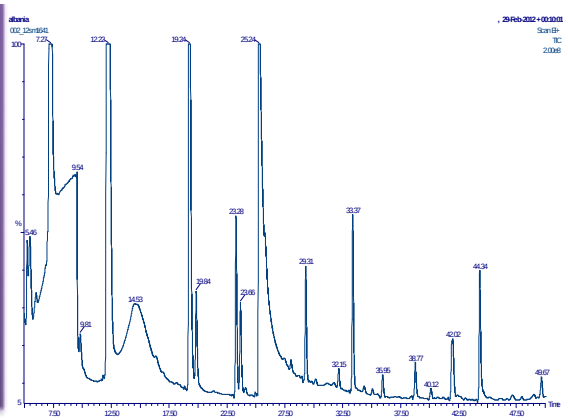
RESULTS AND DISCUSSION

Table 1 presents the results of sugar content, acidtetit and mechanical composition of the raw material

Fruit	Sugar content	Acidity gr / lt ac tartrik	State
Pearl	20 Brix	4	undamaged

In general the fermentation is good undertaken, the temperature has not gone above 22 ° C it shows that fruit fragrances are stored during fermentation were carried out four pumping ventilation to cool wine and not alienating the origin of fruit fragrances. In the graphic shown fermentation time data.





Than the fresh distillate was aged in presence of Q.robur oak that was previously treated with heat in an vetilated kiln, as it is dictated by the actual european normative. According to the analytical parameters assessment conducted by official methods the alcoholic distillate produced by grape variety Perla represents:

Component	Fresh distillate	1 year aged distillate
Methyl alcohol	0.17 ml% ml a.a	0.17 ml% ml a.a
Aldehyde acetic	35.5 mg% ml a.a	34.0 mg% ml a.a
Ethylacetat	182.0 mg% ml a.a	183.0 mg% ml a.a
Superior alcohols	167.5 mg% ml a.a	168.0 mg% ml a.a
Ethyl capronate	1.90 mg% ml a.a	0.64 mg% ml a.a
Linallol oxide trans furanic	0.20 mg% ml a.a	0,24 mg% ml a.a
Geraniol	0.96 mg% ml a.a	0,94 mg% ml a.a
Ethyl lactate	33.00 mg% ml a.a	34 mg% ml a.a
Ethyl miristat	0.33 mg% ml a.a	0,20 mg% ml a.a
3-methylbutanol	84.5 mg% ml a.a	84,5 mg% ml a.a
2-methylbutanol	20.5 mg% ml a.a	21 mg% ml a.a
Furfurol	2.30 mg% ml a.a	2.40 mg % ml a.a

The organoleptic assessment shows that the distillate presents pronounced aroma of flowers, which intensified after a year of ageing in oak presence. The flower aroma is attributed to the variety and the ageing time.

CONCLUSIONS

Based on the results obtained from the study with the aim of producing alcoholic distillates from Pearl grape we got the following conclusions:

1. The raw material was in good health which enabled producing raki with low acidity.

2. Furfurol as one of the representatives of the aldehydes that comes as a result of overheating the mass of fermented must grape, is present in our raki but in lower quantity, that increase its percentation after 1 year of ageing in Q. robur oak presence that was treatet with heat in an vetilationed kiln.

3. GC/MS analytical parameters evaluation indicates the presence in levels of esters and aldehydes and the measured parameters are within permitted rate of the europen standart at the Pearl Rakia that we have produced.

4. To exclude the deterioration of the product should be exercised caution in handling raw materials, should follow a regular technique of fermentation to gain much in return sugar to alcohol and to obtained as much pleasant aroma that will then transmitted at the Rakia.

5. The Raki produced with advanced technology resulted in very good parameters that expressed both in physical - chemical assessment and in the organoleptic one. Rakia appear translucent, aromatic, with noted flower and fruit flavor characteristic of the variety used to produce the raki.

6. The distillate presents pronounced aroma of flowers, which is atributed to the presence of aldehydes, esteres and terpenols like Geraniol, Linallol oxide trans furanic etc. this aroma intensified after 1 year of ageing in oak presence. The flower aroma is attributed to the variety and the ageing time.

7. During 1 year of ageing of the Pearl raki in the presence of oak we have losses in some components such as: Aldehyde acetik, Ethyl capronate, Geraniol, Ethyl miristat, and gain in some others such as: Superior alcohols, Ethylacetat, Linallol oxide trans furanic, Ethyl laktate, 2-methylbutanol, Furfurol.

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