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Dissemination Conference of current European Research on Rice

Villa Gualino Congress Center
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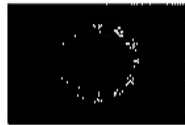
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APPLICATION OF SENSORY ANALYSIS TO DISCRIMINATE THE ORIGIN OF S. ANDREA RICE

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Summary

The aim of this study was to highlight the chemical and sensory distinction of S. Andrea rice for the request of a Brand Denomination. Unlike chemical analysis, sensory analysis showed a notable difference between S. Andrea rice produced in the Brand Denomination area and that obtained from other Piedmont rice-growing areas.

Keywords

Sensory analysis, rice, paired comparison test, Protected Origin Denomination, S. Andrea

Abstract

On the European and Italian scene, Piedmont rice-growing has a significant position not only from the point of view of quantity accounting for about 50% of the national production, but also and most importantly for its quality. From this viewpoint the S. Andrea rice obtained from the Rizzotto (Lady Wright xP6) with a long large grain is very important. It does not overcook and is therefore particularly indicated for risotto and rice salads.

The S. Andrea rice is tilled typically in the '*baraggia*', an area at the foothills of the Alps characterised by a compact, impermeable terrain and cool rainy climate and has created a wide market especially abroad where it is much appreciated and requested for its high quality.

However, at the current time, the surface area where S. Andrea rice is cultivated is decreasing to the advantage of expensive varieties such as Arborio, Baldo, Carnaroli or Roma and other minor rice varieties.

In order to increase production and limit the reduction of the growing zone, a request for 'Production Origin Denomination' (POD) for the Piedmont S. Andrea rice was submitted in May 2000 according to the European Economic Community law 2081/92.

The aim of this study was to highlight the chemical and sensory specifications for the request of this Brand Denomination and if it were possible to distinguish the S. Andrea rice produced in the Brand Denomination area to that produced in other rice-growing areas of Piedmont. Then eight samples of rice produced in the year 2000 coming from the same number of firms were polished in a pilot plant and subjected to chemical and sensory analysis.

Five of these samples came from firms inside the Brand Denomination area and three from firms located outside this area.

Results of the chemical analysis (Table I) does not show any statistical difference between the S. Andrea rice produced in the POD area and that produced in other zones.

Table 1 - Mean (X) and standard deviation (\square) of major components of S. Andrea rice produced in the POD area and in others areas

	POD area		Other areas	
	X	\square	X	\square
Water (%)	14.28	0.47	13.29	0.74
Proteins (% dry matter)	6.79	0.67	5.93	0.84
Amylose (% dry matter)	17.2	0.9	18.6	0.81
Ether extract (% dry matter)	0.17	0.07	0.28	0.13

For the sensory analysis the samples of the two areas were mixed together in order to carry out paired comparison tests (ISO 5495) on only two products. The rice was cooked in still water (rice:water ratio 1:5) for 14 minutes and it was served with no seasonings in white porcelain cups of about 100 mL.

The testing panel was made up of 20 trained assessors. Sensory analysis was performed in the Department's sensory room with 8 booths designed according to ISO 8589. The χ^2 test show a significant difference ($P < 0.05$) between the two samples because the S. Andrea rice produced in the POD area was attributed greater firmness than that produced in other areas (Table 2).

Since the area is distinguishable for its soil and its climatic characteristics, there are subsequently two productive areas within the POD production (the '*baraggia*' and the '*non baraggia*'), thus a new series of paired comparison tests was carried out to compare the S. Andrea rice produced in these production zones.

The obtained results show a high statistical difference ($P < 0.01$) between the rice produced in these two areas and again the product from the '*baraggia*' was attributed a better texture.

Table 2 - Significant values in the comparison between the S. Andrea rice produced in the '*baraggia*' area and in the '*non baraggia*' area (ns: not significant)

Comparison	p
POD area vs other areas	0.04
' <i>Baraggia</i> ' area of POD vs ' <i>non baraggia</i> ' area of POD	< 0.01
' <i>Baraggia</i> ' area of POD vs other areas	< 0.01
Other areas vs ' <i>Non baraggia</i> ' POD area	ns

The results obtained for the S. Andrea rice shows the need to use objective parameters such as chemical and sensory characteristics to define the production area within a POD and the importance that sensory analysis can have to discriminate and characterise agri-food products. Hence sensory analysis, also in the case of rice can be an effective tool for a fast and full characterisation of products and thus integrate if not substitute longer and laborious chemical analysis.

References

- + Meilgaard M., Civille G.V., Carr B.T. 1991. Sensory evaluation techniques. CRC Press, Boston.
- + Paule C.M., Powers J.J. 1989. Sensory and chemical examination of aromatic and nonaromatic rices. J. Food Sci., 54(2), 343-346.
- + Piggott J.R. 1988. Sensory analysis of foods. Elsevier Applied Science, London.