

Uruguayan Rice (*Oritza sativa L.*) Oils Characterization

Rodríguez C.¹, Suburú G.¹, Torres M.², Olazabal L.², Torre A. ²

¹Cereals, Fats and Oils Department, ²Cromatography and Mass Spectrometry Department
Laboratorio Tecnológico del Uruguay, Montevideo-Uruguay
crodrig@latu.org.uy

The rice crop is one of the most developed agricultural activities in Uruguay, having become the third item of export. Although the main product of the rice chain is the elaborated rice, in the recent years several industries have begun to produce co-products of rice: crude rice oil and refined oil, rice flour and cookies. The production of crude oil begins with ground, peeled and polished rice grain. This product can be used in animal nourishment or in oil extraction. Refinement from the crude rice oil takes the same steps than any other vegetable oil. As any other vegetable oil, rice oil is very prone to oxidation, this is due to the high percentage of polyunsaturated acids, despite the vitamin E content and its role of antioxidant. Therefore, sometimes additional stabilization is needed. The main purpose of this work is to characterize the Uruguayan Rice Oils by determining the following parameters: profile of fatty acids, alpha tocopherol, Iodine Index, Refraction Index, Saponification Index, Unsaponifiable Matter and Density at 20°C. The Norm used as reference was the American Oil Chemistry Society. In this condition the statistical analysis performed shows that there is not a model that could explain the variability of the studied factors nor reduce the number of factors that must be taken into consideration. The Kolmogorov-Smirnov test, performed according to Lillieford correction to verify normality, showed that distribution of fluctuations that correspond to the three most abundant fatty acids studied (16:0, 18:1 and 18:2) can be considered as normal. The obtained values for the insaturated fatty acids were from 15.6 to 18.2 for 16:0, from 42.1 to 43.8 for 18:1 and from 34.8 to 37.4 for 18:2. These results obtained were correlated with the high values of the Iodine Index: 100.6 – 101.8. Results of vitamin E expressed as alpha tocopherol are between 7 and 35 mg/100g, but in 75% of the cases the results oscillated between 18 and 26 mg/100g. As the study of the residuals does not show evidence of lack of linear fit, we do not discard such adjust in this instance. Therefore it is possible that, introducing a substantially larger quantity of samples than the ones performed in the present preliminary study, could enable to find an appropriate and relatively simple model, which could explain the linear fit.