

Poster

Comparative study of different methods for determining moisture in different food matrices



Ballesteros Martín, María de la Menta(1), Andrada Franco, Fernando(2), y De La Rosa Herrera, María(1*)

(1)Molecular Biology and Biochemical Engineering Dpt., Experimental Sciences Faculty, Pablo de Olavide University. Ctra. de Utrera km 1, 41013 Seville.

(2)La Negrilla Industrial Park, 4th Avenue, building nº 28, 41016 Seville

Tutor académico: Ballesteros Martín, María de la Menta

Keywords: moisture; internal method; external method; AOAC; ISO; food matrix.

ABSTRACT

The determination of moisture in food is a very important process because the moisture content affects the processing capacity, the shelf life, and the quality of the product. Therefore, moisture content determination plays a key role in ensuring quality in many industries, such as food, pharmaceutical and chemical.

The objective of this study was to evaluate the differences between the internal method used in Laboratorios Vital and different external methods of the Official Association of Analytical Chemists (AOAC) or the International Organization for Standardization (ISO). External methods evaluated were: ISO 662:2016, ISO 3727-1:2001, ISO 665:2001, AOAC 984.25, AOAC 931.04, AOAC 926.08, AOAC 968.11, AOAC 934.01, AOAC 941.08, AOAC 925.45C, ISO 5537:2004, ISO 579:2013 and AOAC 934.06. By means of this study, what is intended is to demonstrate the validity of the internal method being that each external method of the AOAC or ISO has associated the use of a specific temperature and time which would require more time to perform the moisture determination.

To carry out this study, 12 different food matrices were introduced in a Dinko D60D stove: butter, oil seeds, frozen chips, chocolate, cheese, roasted coffee, tea, ice cream, honey, milk powder, coke and dried fruit.

Moisture analysis were performed for 5 non-consecutive days and every day 2 replicates of each food matrix were analyzed. After carrying out the different tests, the results were compared and it was observed that there were no significant differences in the determination of the percentage of moisture. This allows to confirm that the internal method used by the company is reliable for the determination of this parameter, which has clear economic advantages for the analytical laboratory that reduces the time of delivery of data to customers by almost a week.

REFERENCES

- Ahn, J. Y., Kil, D. Y., Kong, C., & Kim, B. G. (2014). Comparison of oven-drying methods for determination of moisture content in feed ingredients. *Asian Australasian journal of animal sciences*, 27(11), 1615-1622. doi:10.5713/ajas.2014.14305
- Tirado, D. F., Montero, P. M., & Acevedo, D. (2015). Estudio comparativo de métodos empleados para la determinación de humedad de varias matrices alimentarias. *Informacion Tecnologica*, 26(2), 3–10. <https://doi.org/10.4067/S0718-07642015000200002>
- Zambrano, M.V., Dutta, B., Mercer, D.G., MacLean, H.L. & Touchie, M.F. (2019) Assessment of moisture content measurement methods of dried food products in small-scale operations in developing countries: a review. *Trends Food Sci Technol* 88:484–486. <https://doi.org/10.1016/j.tifs.2019.04.006>

