Poster

Validation of the method for determination of water activity in foods

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ABSTRACT

The growing interest in water activity as a food quality parameter has led the company Laboratorios Vital to try to validate the water activity determination method before the National Accreditation Entity (in Spanish, ENAC). For this purpose, numerous water activity measurements of reference materials and food samples have been collected under isothermal conditions between sample and sensor (Reid, 2007), to calculate a series of parameters based on statistical equations that confirm the correct functioning of the water activity determination method. To perform the measurements of water activity in food samples, a previous preparation was made, in which the samples were homogenized with a Moulinex mixer in case they were not liquid, were not in powder form or did not crumble easily. Water activity measurements were then carried out in duplicate with a Novasina brand electric resistance hygrometer, obtaining accuracy values of 0.0014, repeatability of 0.0013, reproducibility of 0.0021 and uncertainty of 0.0075. All these values meet the requirements established by ENAC and included in the EN ISO 18787:2017 standard to consider the method valid. Likewise, with the water activity values in the reference materials, a control chart of the method was also produced. Four of the measured values exceeded the warning limits set in the graph and one of them also exceeded the control limits. Even so, the percentage requirements for accurate determination of the parameter were met, i.e., more than 95% of the data were within the warning limits and more than 99% were within the control limits (Thompson and Wood, 1993). The main conclusions drawn are that the method used by Laboratorios Vital to determine water activity is adequate and, when examining the control chart, it is observed that the analytical determinations meet the accuracy established by EN ISO 18787:2017.

REFERENCES

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