



## Inter-laboratory validation of a method for detecting previously frozen poultrymeat by determination of HADH activity. (AGRI-2012-C4-05)

Poultry is a perishable product which requires careful control of temperature during production and retail processing. European poultry marketing legislation<sup>1</sup> requires that poultry be marketed either as fresh or as frozen (or quick-frozen) poultry. It is not permitted to market poultry which has been frozen and thawed as fresh poultry. A robust analytical method that is capable of distinguishing between fresh and previously frozen poultry is therefore required for Official control.

A method to detect whether poultry and other meats had been previously frozen was developed and validated by collaborative study in the UK in 1997. The method relies on measuring the  $\beta$ -hydroxyacyl-CoA-dehydrogenase (HADH) activity of intracellular juice obtained from prepared test samples. The ratio of the HADH activity of sub-samples tested before and after laboratory freezing is compared to a reference cut-off limit to determine whether the sample has previously been frozen.

The cut-off limit calculated for chicken breast meat in the original method validation study was 0.9. Subsequently, however, this value was found to be too high to effectively distinguish between chilled and previously frozen poultry.

Additional work was funded by the Foods Standards Agency in the UK with the aim of improving the method to achieve a more effective cut-off limit for chicken. This work was carried out at LGC and improvements were made to the method which was then applied to additional poultry samples. The method was validated at LGC and a cut-off limit of 0.5 for chicken was recommended.

The aim of the current study was to validate the revised cut-off value for chicken breast by collaborative trial.

The trial was conducted with two groups of participants. The first group consisted of twelve laboratories selected from the National Reference Laboratories (NRLs) for added water in poultry from EU Member States. This part of the study was funded by DG-AGRI on behalf of the European Commission. The second group consisted of twelve laboratories from Official Control (Public Analyst) Laboratories in the UK. This part of the study was funded by the UK Department for the Environment, Food and Rural Affairs (Defra).

The study was planned and executed so that all laboratories performed the same tasks within the same time period, enabling the data to be combined to maximise the dataset available.

Each laboratory was asked to analyse 24 chicken breast samples and to use the results to determine the thermal history (chilled or previously frozen) according to the Standard Operating Procedure (SOP) provided. All samples were supplied as chilled blind samples.

The results of the study showed inter-laboratory variation between the results obtained for chilled and for previously frozen chicken however, despite this, almost all of the samples were correctly identified and reported in terms of their thermal history. Although some reduction in the analytical variability of the method would be beneficial, the results confirmed the suitability of the revised cut-off limit of 0.5 for the official control of chicken.

The collaborative trial was successful in validating an analytical method that is suitable for the detection of previously frozen chicken which can be used to enforce legislation relating to the marketing of chicken within the European Union. The study will be published in a peer-reviewed journal in due course but the report including the SOP is freely and publically available on the European Commission website. [http://ec.europa.eu/agriculture/external-studies/index\\_en.htm](http://ec.europa.eu/agriculture/external-studies/index_en.htm).

1. Annex XIV, Chapter B to COUNCIL REGULATION (EC) No 1234/2007 of 22 October 2007, establishing a common organisation of agricultural markets and on specific provisions for certain agricultural products (Single CMO Regulation). (OJ L 299, 16.11.2007, p. 1)