



Chairman's introduction

In this symposium we shall learn of the results from a number of laboratories on vitamin retention after heat sterilisation, microwave cooking, in the cook-chill process, during blanching of vegetables, in extrusion cooking and after irradiation. The initial overall review by Professor Walter of the relative importance of vitamin enrichment of food and dietary supplements puts these findings into perspective.

However, I must issue a word of warning about inconsistencies in published results. The literature on nutritional changes that take place when foods are blanched, frozen and stored is often inconsistent. Indeed, this is true of all methods of processing. This may be because of differences in varieties, sources of raw materials, and experimental conditions and sometimes imprecise methods of assay of the nutrients.

It should be possible to draw more useful conclusions from results obtained in the same laboratory. However, a recent set of comparisons from Denmark reported to COST 91 (European Co-operation in Science and Technology) illustrates some of the problems.

This work consisted of an examination of vitamins B₁, B₂ and B₆ in four meat products stored for 1 year at -12 and -24°C and analysed at 2-monthly intervals. The major problem is illustrated by the fluctuations in results on pork loin (taken from the published graph). Thiamin retention after 8, 16, 24, 32, 40 and 50 weeks storage (and subsequent cooking) was 85, 110, 90, 100, 85, and 80% at -12°C. At -24°C, at the same times, the figures were 80, 40, 65, 80, 50 and 50%.

The conclusions from the Danish work indicate that

after storage at -12°C and cooking, about 90% of the thiamin is retained. At -24°C the results are so variable that no conclusions can be drawn. The figures would seem to indicate about 50% retention but poorer retention of thiamin at the lower temperature does not seem logical.

The figures for vitamin B₂ are more consistent. At -12°C there appears to be 90% retention with fair consistency. However, at -24°C the figure at the test periods were 115, 130 (!), 95, 85 and 115%. The only safe conclusion is that there is no loss.

Vitamin B₆ figures were more regular than thiamin figures, remaining at about 80% retention from 24 to 50 weeks storage. Again, at -24°C the values were more erratic; 120% retention after 40 weeks then suddenly falling to 50% at 50 weeks.

Figures for ground meat were also more consistent. Only final figures are given—results after 52 weeks storage were the same at both temperatures, namely 80% for B₁ and 85% for B₂. For B₆, retention was 122% at -12°C and 107% at -24°C.

The authors admit that the results are confusing.

Despite the inconsistencies in the literature we trust that the papers published here will be able to provide us with convincing conclusions from the authors' own work and that of other researchers.

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