

Fortification of pasta with folic acid

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There is growing evidence that folic acid, a B group vitamin naturally present in food plays an important role in preventing megaloblastic anaemia and reduces the incidence of neural tube defects (NTDs) in newborns if consumed adequately during pregnancy. The National Health and Medical Research Council (1995) has recommended that an estimated 50-60% of NTDs which is affecting 400-500 pregnancies each year could be prevented by fortifying core foods. However, the accurate measurement of natural folate level in food, stability during food processing are vital before undertaking any fortification procedure.

In this study, pasta was chosen as a core food for fortification. The standard AOAC (1995) microbiological method with *Lactobacillus casei* was followed with a few modifications. Natural folate content of semolina, dough, fresh pasta, dry pasta, and cooking water along with commercial pasta (Vetta) were determined from the regression equation of the standard growth curve of *Lactobacillus casei*. Results showed that significant losses ($P < 0.05$) of folate were observed in the dry and cooked pasta. Folate content was to be stable in other processing stages such as dough and fresh pasta. A total loss of 43% from the semolina stage to the cooked stage was estimated.

Samples	Mean Folate Content* µg/100g dry weight
Semolina	25 ^b
Cooking water	7 ^b
Cooked pasta	14 ^b
Dry pasta	20 ^a
Dough	20 ^a
Fresh pasta	23 ^a
Commercial Pasta (dry)	23 ^a

* Values are means of ten replicate analysis

Means with different superscripts are significantly different ($P < 0.05$)

The second stage of the study was to look at fortification of pasta and the stability during processing of both added and fortified folate. Levels of 50% (100µg/100g) and 100% (200µg/100g) of RDI for folic acid when added to pasta showed greater retention of folic acid than observed with natural folate. No desirable sensory changes at 100% fortification level was observed. Extensive cooking losses of folate could be compensated by an effective fortification program.