Project Progress Summary

PROJECT IDENTIFICATION	NOT CONFIDENTIAL
Title:	Folate: from food to functionality and optimal health
Acronym:	FolateFuncHealth
Type of Contract:	Share-cost
Contract No:	QLRT-1999-00576
Total Project Cost:	2.91meuro
EU Contribution:	2.20 meuro
Duration:	42 months
Commencement Data:	1/2/00
Period covered by report:	1 February 2000 – 31 January 2002
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Key Words:	Folate, food, bioavailability, functionality, health
Project's www address:	http//:www.ifr.bbsrc.ac.uk/folate
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Section 2: Project Progress Report

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Objectives: To bring together commercial and consumer interests via parallel and interconnecting workpackages which seek to provide folate-rich and enriched foods with specified and scientifically verified consumer benefits for optimal bioavailability, function and health. Independent nutritional scientists, biochemists, clinicians, and food technologists will work together with companies interested in developing folate-rich foods and folate-enriched products to achieve this objective.

Results and Milestones:

The project has completed two years and the following results and milestones have been completed during the second year:

- A report on the use of microbiological and HPLC procedures for the determination of folates in food concluded that HPLC methods for food folate analysis may underestimate total folate content by 20%;
- Eight model foods (spinach, non-alcohol beer, orange juices, milk and dairy foods, rye bread and fortified white bread) have been prepared and used in processing, *in vitro* and human studies;
- Processing studies have been conducted for a range of foods including fermented vegetables, oranges, beer, Gazpacho soup, and peas.
- All human studies are progressing well and two studies investigating folate bioavailability from natural food folates from rye compared to a folic acid fortified white bread, and folate bioavailability from folic acid fortified UHT and pasteurised milks, with and without the addition of folate binding protein have been completed. Plasma and red cell folate results from the first study indicate that natural folate from rye are equally well absorbed compared to the folic acid fortified bread. Similar results were obtained from the second study showing that milk would be a useful vehicle for fortification. The influence of folate binding protein is currently been investigated using the in vitro model approach.
- Initial results from Phase 1 of the human study in Rome show that a diet rich in natural folates may be equally effective at lowering elevated plasma homocysteine in a group of adults compared to folic acid and 5-methyltetrahydrofolate capsules. However, the reduction may be significantly influenced by polymorphisms in methyltetrahydrofolate reductase enzyme
- Five meeting reports, four project newsletters and 2 FLAIR-FLOW articles have been published, the latter being widely disseminated to industry, scientists, government and consumer bodies;
- A project web page has been established (http//:www.ifr.bbsrc.ac.uk/folate) and has recorded an average of >600 monthly hits during this period;
- Partners from the project have presented results at various food and nutrition meetings including: Bioavailability 2001 (Interlaken, May 2001), 3rd International Conference on Homocysteine Metabolism (Sorrento, July 2001) and the International Congress of Nutrition (Vienna, August 2001).

Benefits and Beneficiaries:

- Development of foods (including improved use of raw materials and optimised food processing techniques) which will enable the diet rich in folates within the range indicated to be protective for human health;
- Verification of the efficacy of folates in moderating specific risk factors for chronic disease;
- Quantification of bioavailability of natural folates versus synthetic folic acid added to foods;
- Pre-competitive information for the development of effective, sustainable, ethically-acceptable dietary strategies for folate-rich foods and folate-enriched products, to support competitive-edge within the European food industry, and meet consumer expectations of health benefits.

Future Actions (if applicable): The project will continue to the planned research activities stated in the Technical Annex.

- A mid-term project meeting will be held in conjunction with the Symposium on "Folates and the prevention of disease: is there a need for a public health initiative?" to be held in Hannover, Germany (7-11 September 2002) as part of the 30th Conference of the European Teratology Society (contact Heinz.nau@ets2002.de for further details).
- The 6th project plenary meeting is scheduled to take place in Rome (16-18 January 2003) and the final meeting is scheduled for either June or September 2003 in Warsaw.
- Two proposals for EU funding (an Accompanying Measure to support a folate conference and a project enlargement to allow the addition of two NAS-partners to join) are currently under evaluation.

End of Summary.