



**Database for Predictive  
Microbiology**



US Department of Agriculture  
Agricultural Research Service



Eastern Regional Research Cent  
Wyndmoor, PA, USA

**ComBase**  
**New free predictive microbiology database**

**ComBase**, a food microbiology database, has been made freely available on two mirror web sites:

<http://wyndmoor.arserrc.gov/combase/> ; <http://www.ifr.ac.uk/combase/>

**ComBase** is recommended to anyone interested in the microbial safety and quality of foods.

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**History**

In the 90's, two major datasets were generated on bacterial responses to food environments: one was the basis of *Food MicroModel*, a commercial package supported by MAFF (Ministry of Agriculture Fisheries and Food) and subsequently FSA (Food Standards Agency) in the UK; the other was behind the *Pathogen Modeling Program (PMP)* of the Eastern regional Research Center (ERRC), Agricultural Research Service (ARS), US Department of Agriculture (USDA). These two independent datasets constitute thousands of microbial growth and survival curves that are the basis for numerous microbial models used by industry, academia and government regulatory agencies.

The FMM and PMP datasets have been supplemented with additional information submitted by members of the ERRC, ARS, USDA Center of Excellence in Microbial Modeling and Informatics (CEMMI) and by that compiled from the scientific literature by the Institute of Food Research (IFR), Norwich, UK, through UK Government support.

Ultimately, all these data sets have now been unified in a common database known as **ComBase**, following a structure developed by the IFR.

Under the funding of the European Union (QLAM-2001-00513: *e-ComBase*), many EU institutions are also adding their data to **ComBase**. By the end of 2003, **ComBase** will contain up to 20,000 full bacterial growth and survival curves and some 8000 records containing growth/survival rate parameters.



European Commission  
Thematic Programme 1 -  
*Quality of Life and  
Management of Living Resources (QoL)*  
Key Action 1 - Food, Nutrition and Health

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### **Petition for a Common Format and Data Submission**

The **ComBase** partners invite microbiology laboratories in academia, government and industry to submit relevant predictive microbiology data to **ComBase**. This international effort will:

- avoid unnecessary repetition of experiments, therefore increasing the efficiency of research efforts;
- improve predictive models, therefore improving food safety and quality;
- standardize the data sources for microbial risk assessors, therefore decreasing potential trade disputes;

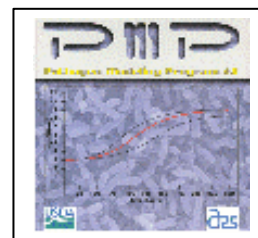
Scientists and their organizations are encouraged to visit the *ComBase* web site to discover the diversity and depth of the database, and to learn how to organize and submit datasets. Technical assistance is available upon request.

### **Predictive Power**

In a future project, the consortium will utilize **ComBase** to produce a package of unified predictive models known as **ComBase-PMP: Combined Database and Predictive Microbiology Program**. During the development phase of the **ComBase-PMP**, the **ComBase** partners continue to provide their respective software packages.

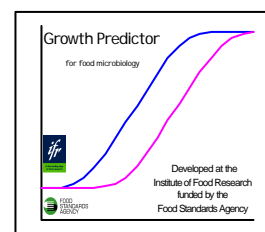
The PMP is available at <http://www.arserrc.gov/mfs/pathogen.htm>.

ERRC, ARS, USDA  
Pathogen Modeling Program



*GrowthPredictor*, the successor of FMM, is available at:  
<http://www.ifr.ac.uk/Safety/GrowthPredictor>

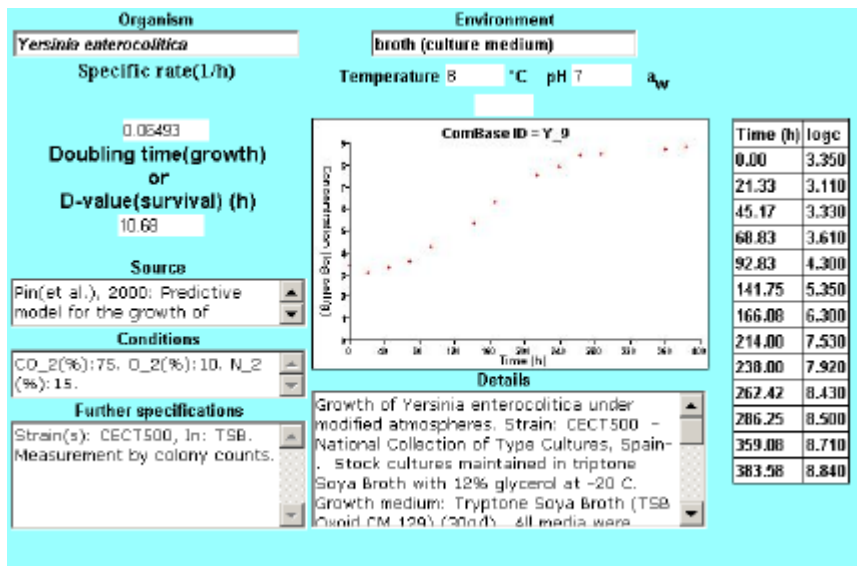
FSA - IFR  
GrowthPredictor



## ComBase on the Internet

The Internet version of the *ComBase* browser, developed by ERRC, ARS, USDA, carries out queries for records that match a number of food environmental factors, such as temperature, pH, and water activity. Anyone interested in the microbial safety and quality of foods can explore this valuable resource at no cost.

Screenshot from ComBase



For further reading:

Baranyi J and Tamplin M. (2002). ComBase: A Common Database on Microbial Responses to Food Environments. *J. Food Prot.* (In press).

Baranyi, J. and M.L. Tamplin. 2002. ComBase: a combined database on microbial responses to food environments. 1<sup>st</sup> International Conference on Microbial Risk Assessment: Foodborne Hazards. College Park, Maryland. p.23