



Dublin, Ireland
9-11 June 2010

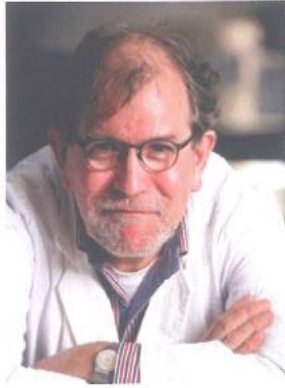
**IAFP's Sixth European
Symposium on Food Safety**

Speaker Abstracts

Presented by:



International Association for
Food Protection[™]



Potential Control Measures to Eliminate Pathogens from Dry Foods

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Food safety nowadays starts with pre-harvest and harvest conditions, which is almost impossible in certain countries. In the post-harvest environment, food safety becomes less commodity oriented, as the food moves through processing into the distribution and retail sectors. The microbial controls applied in the post-harvest environment are often designed to be (partly) lethal (pasteurisation, sterilisation) or may be intended to limit the growth of microorganisms. The latter often used with a combination of growth limiting factors (hurdle technology).

From 1980, a number of methods have been described to detect foodborne pathogens, and to decrease the microbial contamination of various food products. Numerous studies have been published on the effect of preservatives and new techniques on these organisms, in combination with Hazard Analysis Critical Control Point (HACCP). Moreover, an army of risk assessors tries to formulate Food Safety Objectives in order to reduce the burden of food borne diseases.

Food safety must be a paramount concern in food processing. Current standards require an integral approach that considers every step, from “farm-to-fork”, because each stage has an effect on the safety of the final product. The current way to represent this approach is through the Food Safety Objective (FSO) concept described in equation (1), for each pathogenic microorganism at the point of consumption:

$$H_0 - \sum R_i + \sum G_i + \sum C_i \leq FSO \quad (1)$$

where:

H_0 is the \log_{10} of the initial concentration; R_i is the \log_{10} reduction caused during step i ; G_i is the \log_{10} growth resulting during step i ; C_i is the \log increase due to (re)contamination during step i ; FSO is the Food Safety Objective.

At each step of production the same approach can be applied; the target to be achieved at each step is called the performance objective (PO). For the final step performed by the consumer, just prior to consumption, the value can appropriately be considered an FSO. In order to meet the FSO at the end of the chain, one can set POs along the chain to indicate the targets at earlier stages; targets that will allow the FSO to be met. In this manner responsibilities and specifications of all partners in the chain may be quantified, agreed and agreed upon and will be transparent.

Using this procedure will make it possible to identify the most effective combination of control measures (e.g., zoning, heating, radiation, gassing) for pathogens in dry products.