RESEARCH TENDER CALL

TENDER INFORMATION DOCUMENT

Project Reference No.: 03-2016

Project Title:

"Assessment of the safety of sous vide cooking at lower temperatures"

1. *Objective/Knowledge Gap*

The project aim is to assess the safety of sous vide cooking at temperatures below 60°C.

The specific objectives are:

- To confirm the food types and time/temperature combinations most commonly used during sous vide cooking in restaurants on the island of Ireland
- To assess the safety of sous vide cooking of these foods at time/temperature combinations between 50 and 59°C, focussing on the survival of *Listeria monocytogenes* and other pathogens, as appropriate
- To make recommendations on advice for caterers on the appropriate use of sous vide cooking at temperatures below 60°C

2. *Background*

Sous vide is a method of cooking in which the food is vacuum packed in a plastic pouch and then cooked by submersion in a temperature controlled water bath for a specified period of time. The lack of air in the bag allows for efficient heat transfer to the product and the sealed bag helps to reduce the risk of post-cooking contamination.

Traditional cooking methods involve pasteurisation, i.e. heating to 70°C for two minutes (or equivalent) to ensure that any pathogenic bacteria present are killed. The process must ensure that the time/temperature combination is applied to the part of the product that is slowest to heat, usually the centre. The use of inappropriate temperature/time combinations in sous vide cooking may allow pathogenic bacteria to survive or grow in the food, thus presenting a risk to human health.

Recent years have seen an increase in the popularity of sous vide cooking in restaurants on the island of Ireland, with reports that some may be cooking at temperatures as low as 40°C.

Equivalent temperature/time combinations have been established for temperatures between 60 and 69°C[1].
However, there is a lack of information on temperatures below 60°C[2] and it is intended that this study will go some way towards addressing this gap for the most commonly used recipes on the island of Ireland.

3. *Approach*

This will be a laboratory based project, involving validation studies for the reduction of *Listeria monocytogenes* and other pathogens, as appropriate, in the food most commonly cooked by sous vide.

4. Technical Specification

(a) Scope of research
(b) Literature review
(c) Qualitative and quantitative work
(d) Analysis
(e) Data handling and Reporting
(f) Quality assurance

(a) Scope of the research

The contractor will focus on the food types and time/temperature combinations, over a range of 50-59°C, most commonly used in sous vide cooking in restaurants on the island of Ireland. Anecdotally, it would seem that meat and fish are the most often cooked by this method but this will need to be confirmed before laboratory studies commence.

(b) Literature review

The contractor will take account of previously published work in this area when devising the study, and when analysing and interpreting the data, but a full extensive literature review is not required.

(c) Qualitative and quantitative research

The contractor will devise a series of validation studies to assess the reduction in levels of *Listeria monocytogenes* and other pathogens as appropriate, during sous vide cooking in the most commonly used food types and time/temperature combinations ranging between 50 and 59°C.
The studies must take into account factors such as the thickness of the food portion, the number of portions added to the water bath at the same time and any other factors

[1] Advisory Committee on the microbiological Safety of Food. Report from the ad hoc group on raw, rare and low temperature (RRLT) cooked food. 2014. Available at: http://acmsf.food.gov.uk/sites/default/files/mnt/drupal_data/sources/files/multimedia/pdfs/committee/acmsf/acmsfrrltreport.pdf
[2] Stringer *et al* 2012. Safety of sous vide foods: feasibility of extending ComBase to describe the growth/survival/death response of bacterial foodborne pathogens between 40oC and 60oC. Available at: http://www.food.gov.uk/sites/default/files/800-1-1424_sous_vide_final_report_final_from_1FR_210912_after_spellcheck_and_formatting_0.pdf

(e.g. fat content of the food and strain variation) which may affect the effectiveness of the cooking method. Applicants may wish to submit more than one option for study design, varying in scale and budget.

(d) Data Handling and Reporting

After six months, the contractor will submit to ***safe*food** an interim report detailing progress for each deliverable of the project.

The contractor is responsible for collating all outcomes and a project final project report will be submitted to ***safe*food** on completion of the study. This will include recommendations for advices to chefs and caterers, and for further study, if appropriate.

All forms, documentation and electronic files must be retained by the contractor until further notice from ***safe*food** in case of issues arising after the completion of the research.

(e) Quality Assurance

The contractor will use validated methods where applicable and provide explicit details of the analytical methods.

***safe*food** will visit the contractors during the course of the research to assess how the work is being carried out.

Applicants should provide details of participation in proficiency tests and inter-laboratory comparison schemes for analyses relevant to this work.

Applicants should provide documentary evidence that laboratory quality assurance and quality control measures are in place.

5. Proposed Activities/Deliverables

- A detailed plan outlining the methodology to be used, which must be agreed with ***safe*food;**
- validation studies assessing the effectiveness of sous vide cooking at temperatures between 50°C and 59°C;
- a final project report, detailing all results and interpretation, outlining the significance of the findings with reference to previously published work in this area;
- recommendations for advice to chefs and caterers on sous vide cooking;
- Recommendations for further work in this area, where appropriate.

6. *Evaluation of Tenders*

Tender bids will be evaluated according to the quality of proposals and applicants using the following criteria:

Quality of the proposal:

- ✓ Anticipated deliverables;
- ✓ Research method and facilities;
- ✓ Value for money;
- ✓ Potential for application;
- ✓ Work plan, including the overall timeframe.

Quality of Applicants:

- ✓ Experience in subject area;
- ✓ Quality Assurance and Quality Control measures in place.

8. *Duration of Project*

It is anticipated that the duration of the project will be 9 months. A detailed timescale of research should be submitted by each applicant.

9. *Tender Application Forms and Guidelines*

The Tender Application Form and associated Guidelines can be downloaded from www.safefood.eu. They can also be obtained by emailing research@safefood.eu, quoting the project reference number **03-2016**.

Alternatively please contact ***safe*food** as per the details below.

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The closing date for receipt of applications by ***safe*food** is no later than **4pm on Friday 10th June 2016.**