



Pathogen & Ugly microbe Free Food Industry Network (PUFFIN-06453)

SAFEFOODERA
common pot project within
'Pathogen free food
production chain'

May 16, 2007 – May 31, 2008



The tasks of PUFFIN are to enhance risk assessment and management of pathogens in chosen food production chains at industrial level especially in SMEs based on activities in

- 1) Decontamination routines and **instant care programmes for protective clothing** used in high-hygiene areas,**
- 2) **Advanced surface hygiene** using decontamination technologies and antimicrobial coatings and materials,**
- 3) Risk assessment using **computer-aided easy-to-use model HYGRAM®**.**

The partners in PUFFIN are:

- 1) Matis ohf – coordinator Dr. Viggó Þ. Marteinsonn ,
- 2) The Technical Reserach Centre of Finland (VTT)
- 3) The Royal Institute of Technology (KTH)
- 4) IceTec - Technological Institute of Iceland
- 5) AZTI - Tecnalia / Unidad de Investigación Alimentaria (AZTI)
- 6) EP & TA Laboratories and Veterinary Diagnostics Ltd (EPTA)



PUFFIN - 06453



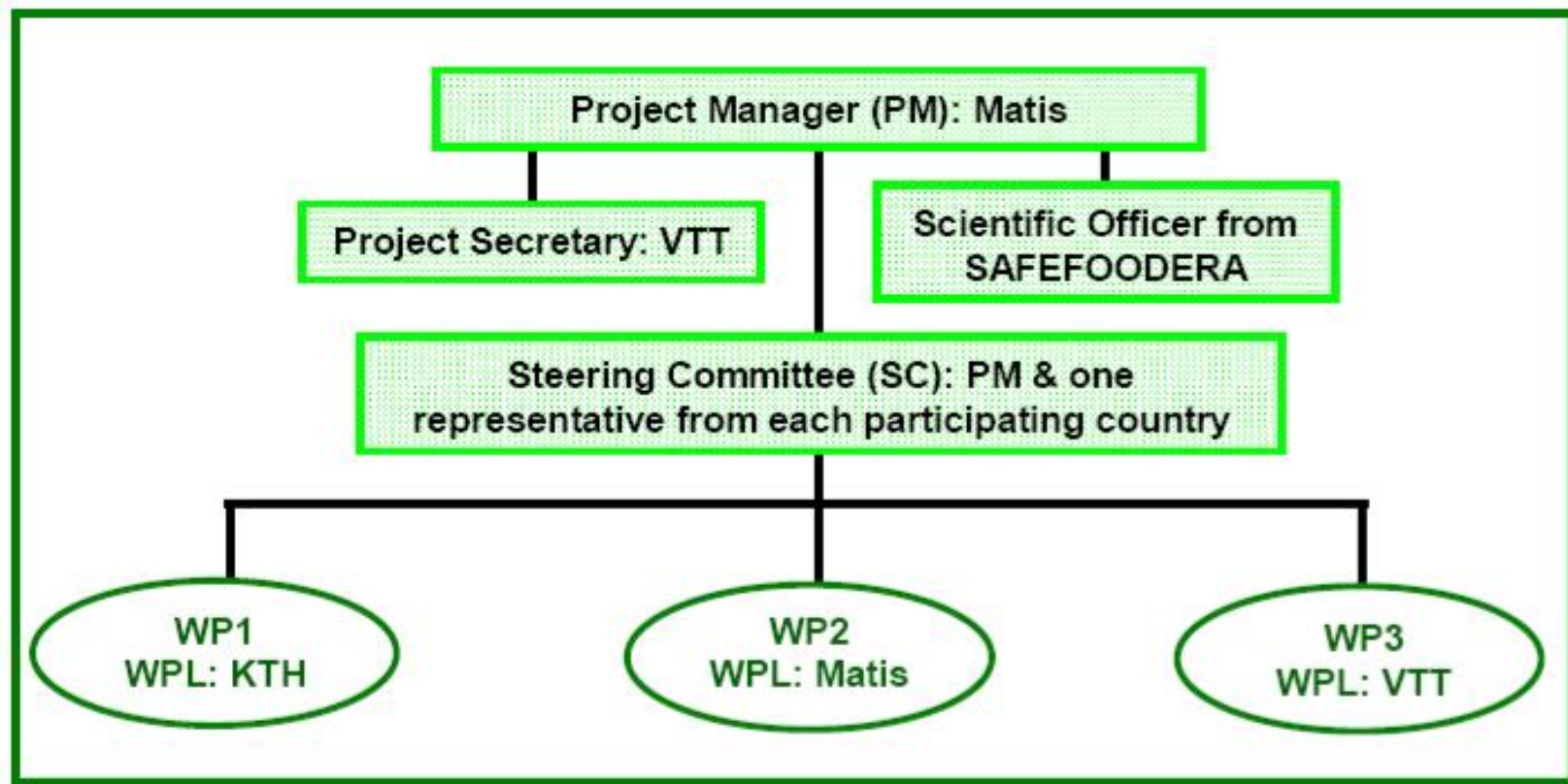
Innovation Center
Iceland



EP&TA
Laboratories and
Veterinary Diagnostics



PUFFIN Project Organisation



The main pathogens studied in PUFFIN are:

- 1) *Listeria monocytogenes*,**
- 2) *Bacillus cereus* and**
- 3) *Salmonella* sp.**

The efficiency of decontamination is studied using both conventional and PCR-based methodologies.

The Industrial Partners in PUFFIN are:

from Iceland - Marel hf & HB Grandi hf

from Finland – Estonian dairy, Awel Oy, Elozo Oy & L. Michael Oy

from Sweden – R³Food & Berendsen Textil Services AB

from Basque country – GARAIA S. COOP

from Cyprus – Blue Island Holding Ltd., F.P.P. Fish Processing Ltd., Pittas Ltd., Christis Dairies Public Ltd., Comet Farm Ltd. & approx. 80 SMEs

WP 1: Instant care programmes for protective clothing used in hygienic areas

Participants: **KTH is the WP leader** and other participants are Matis, VTT, EPTA and industrial platform partners

Care programmes based on air washing can be used during lunch breaks and between working shifts for clothes, shoes and other accessories. In PUFFIN we will **evaluate and compare the influence of different protective clothing** (both conventional and new materials) **and their washing programmes on production hygiene using particle and microbial counts**. Visualisation of particle emissions will be performed in **Body-Box** studies. Protective clothing habits from pharmaceutical environment into food processing will be applied.

- People as a contamination source
- Visualisation of particle emissions will be performed in **Body-Box** studies



WP2: Advanced use of antimicrobial coatings and novel decontamination technologies on process and product surfaces

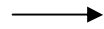
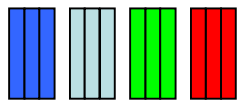
Participants: **Matis is the WP leader** and other participants are VTT, IceTec, AZTI and EPTA and industrial platform partners

The surface hygiene can be improved by using **smooth surfaces with self-cleaning, antimicrobial and dirt-repelling coatings**. Furthermore, **novel decontamination procedures** based on techniques applying e.g. ozonation, free radicals and irradiation are needed to clean process surfaces and equipment effectively in terms of microbiology and economy. The decontamination of product surfaces will also be studied with novel techniques. In PUFFIN we will evaluate methods used for measuring surface topography and microbial adhesion. **The main pathogens studied in this proposed project will be *Listeria monocytogenes*, *Bacillus cereus* and *Salmonella* sp.** The efficiency of decontamination will be followed using **conventional and PCR-based methodologies**.

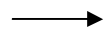
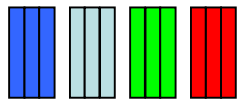


Task 2: Testing of surfaces - on-site testing in the industry

Location 1-3
Four materials in triplicate

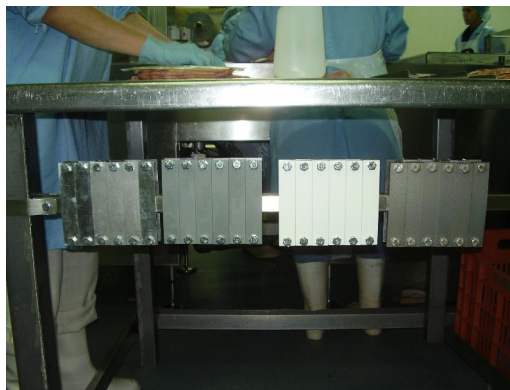


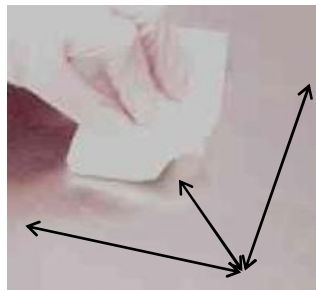
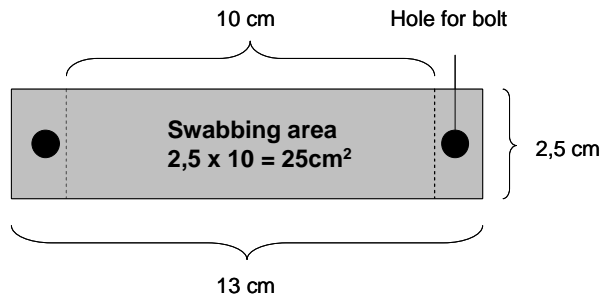
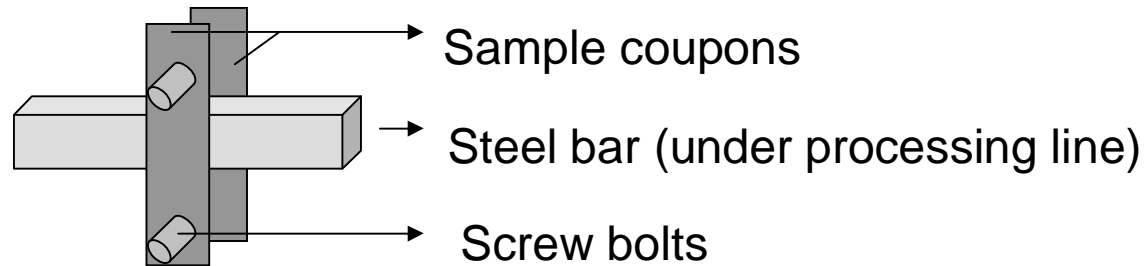
Surface material tested after 2 month incubation
Before and after washing (same coupons)



Surface material tested after 4 month incubation
Before and after washing (same coupons)

Total of 24 test coupons on each location.





Cultivation (total count)

Real time PCR

PCR & 16S rDNA sequencing



Task 2: Testing of surfaces - testing in laboratory environment



Replicate plates will be tested in the laboratory (Matis/VTT/EPTA)

Selection of model organisms for biofilm formation

- *Listeria monocytogenes*
- *Salmonella sp.*
- *Bacillus cereus*

Effect of novel decontamination methods on different surfaces

WP 3: Common task: risk assessment based on the semi-quantitative computer-aided HYGRAM® model

Participants: **VTT is the WP leader** and other participants are Matis, KTH, AZTI, EPTA and industrial platform partners

The hygiene risk assessment model, HYGRAM®, has been developed to facilitate the risk analysis process in food safety management. In PUFFIN we will **introduce and demonstrate the HYGRAM® model to the industrial platform partners**, thereafter they will apply it in a chosen process and report experiences on usability as well as **pros and cons about the HYGRAM® model with further development ideas in mind.**

HYGRAM®

- HYGRAM is a tool to analyze and quantify risks of different processes, and to compare them
- It is developed to relieve enterprises with limited resources in confirming the food safety of their production

Elintarviketurvallisuusvirasto
Livsmedelssäkerhetsverket
Finnish Food Safety Authority

Evira | Kasvintuotanto ja rehut | Eläimet ja terveys | Elintarvikkeet | Eläintauti- ja elintarviketu...

Eläintautitutkimus | Terveystenhuolto | Elintarvike- ja rehututkimus | Zoonoosit | Riskinarviointi | Tieteellinen tu...

Riskinarviointi

- › Riskinarvioinnin periaatteita
- › Kasvinsuojeluaineiden riskinarviointi
- › Valmiit projektit
- › Meneillään olevat projektit
- › Julkaisut
- › Hygram

Eläintauti- ja elintarviketutkimus » Riskinarviointi » Hygram

HYGRAM®

The Hygram® system is a risk assessment model done in co-operation with Evira's Risk Assessment Unit (EELA's Risk Assessment Unit until 30.4.2006), the University of Helsinki (Faculty of Veterinary / Department of Food and Environmental Health) and VTT (VTT Biotechnology until 1.1.2006). Development started at year 2000, and the version 1.1 was published 2003. The new version of the model Hygram® 2.0 (launched 2007) has been developed in co-operation with Dick



PUFFIN 06453
Pathogen & ugly microbe free food industry network

PUFFIN public web-site
HOMEPAGE
<http://puffin.vtt.fi/>

PUFFIN public web-site HOMEPAGE

- About PUFFIN
- Project partners with partner presentations
- Event calendar
- Seminars
- Workshops
- Contact PUFFIN
- Links
- Homepage

PUFFIN extranet

Welcome to the homepage for the

PUFFIN project

First events will be arranged in Bilbao, Basque Country, Spain October 3-5, 2007

Seminar on October 3, 2007

[Instant Care Program for Protective Clothing Used in Hygienic Areas](#)

Workshop on October 4, 2007

[Risk Assessment Based on the Semi-quantitative Computer-aided](#)

Seminar on October 5, 2007

[Advanced Use of Antimicrobial Coatings and Novel Decontamination Technologies on Process and Product Surfaces](#)

REGISTRATION FORM

(version for electronic use)

[Dr. Satu Salo](#)
[Dr. Gun Wirtanen](#)





From	To	Titles	Speaker	
10.00	10.30	Registration and welcome coffee		
10.30	10.50	Welcome and introduction to PUFFIN	Viggo Marteinson, Matis, Iceland	Intro
10.50	11.10	Airborne Contamination	Bengt Ljungqvist, KTH, Sweden	
11.10	11.30	Clothing Systems	Berit Reinmüller, KTH, Sweden	WP1
11.30	11.50	Ozonated Air in Disinfection of Protective Clothing	Gun Wirtanen, VTT, Finland	
11.50	12.20	Coffee and refreshments		
12.20	12.50	Workshop demonstrations on surface materials and coating techniques	Gudmundur Gunnarsson, IceTec, Iceland	
12.50	13.15	Decontamination of food processing surfaces- Overview and results of Puffin	Eyjólfur Reynisson, Matis, Iceland	
13.15	13.40	Decontamination of food surfaces	Nerea Casas AZTI (Tecnalia / Unidad de Investigación Alimentaria), Spain	WP2
13.40	14.05	Case study on surface hygiene in food premises	Pavlos Economides, EPTA Laboratories and Veterinary Diagnostics Ltd, Cyprus	
14.05	14.30	Ozone in decontamination	Savvas Gennaris, visiting scientist at VTT	
14.30	15.00	Coffee break		
15.00	15.30	Tools for Risk Assessment in Food Industry	Satu Salo, VTT, Finland	
15.30	16.00	Case Example in Risk Assessment based on HYGRAM®	Savvas Gennaris, visiting scientist at VTT	WP3
16.00	16.30	Summary of PUFFIN and Event closure	Viggo Marteinson, Matis, Iceland	

