

**Agricultural value chains, entrepreneurship and user aspects, Sarajevo, 01.October 2013**

**DEVELOPMENT OF EDUCATION AND  
TRANSFER OF KNOWLEDGE IN THE AREA  
OF FOOD TECHNOLOGY – **EDUFOOD****

**Prepared by**

- **Nils Jul, project leader**
- **Midhat Jasic, balkan coordinator**

# Partners

- **Balkan partners:**
  - **University of Tuzla,**  
Faculty of Technology
  - **(UNTZ; main Balkan partner)**
  - **University of Novi Sad,**  
Faculty of Technology (**UNNS**)
- **Lead institution in Norway:**
  - **Sør-Trøndelag University College,**  
Faculty of Technology (**HiST**)

# EDUFOOD main goals

To build capacity and competence of Western Balkan Universities to be resources for **local producers and processors** of fruit and wild berry through

- **university**
- **enterprise cooperation**

in education and development and by providing **continuing education**.

# Status EDUFOOD sub-goals

	2012	2013	2014
<b>Mapping of challenges and potentials of improvement for enterprises</b> - Done; - but challenges, needs and possibilities of industry must continuously be a project focus	X		
<b>Establishment of learning forms for campus students</b> - In progress resulting from student and staff exchanges, industry visits, internship etc.	X	X	X
<b>Mapping of needs for and establishing continuing education, courses and workshops</b> - UNTZ: All but continuing education - UNNS: Courses are planned, not yet conducted	X	X	X
<b>Establish Centre for knowledge transfer in Tuzla</b> - Work on strategy and business plan in progress		X	X

# Status EDUFOOD activities

	2012	2013	2014
Acquiring lab facilities – as planned; is finished by end 2013	X	X	
Teacher mobility from HiST to WB – as planned	X	X	X
Teacher mobility from WB to HiST – as planned	X	X	X
Bachelor students – mobility to Trondheim – as planned Additional funding: Bachelor students from HiST to WB	X	X	X
Workshop and seminars – as planned	X	X	X
Articles, posters, international conferences - So far focus on food technology??		X	X
Project website ( <a href="http://histproject.no/node/517">http://histproject.no/node/517</a> – established February 2012): Open areas for general project information; restricted areas for project internal documents	X	X	X

# Focus in this presentation

- The cooperation with industry and other partners
- Building universities competence and capacity

# What the Tuzla region industry need from university in their processes of development?

**UNTZ has mapped challenges and potentials of improvements in production technology and hygiene as well as needs for continuing education, courses and workshops in industry -**

- In October – December 2011: **Written survey answers from industry and organizations**
- A **workshop including 22 participants outside university** as a part of the **Kick-off meeting January 2012**
- Continuously in relevant project activities

Also UNNS has accomplished similar processes with food industry in their region

# Project activities based on industry needs as described in the Tuzla mapping processes

- **Student thesis in cooperation with industry;**
- 20 – 30 students and 15 teachers is involved.
- 5 UNTZ and 4 UNNS students in 2012 and 2013 made practical thesis work at HiST laboratories in cooperation with **Balkan and Norwegian supervisors.**





# Practical work on Tuzla student thesis at HiST

## 2012 Bachelor thesis:

1. Mahovac Edin: „**PRODUCTS AND PROCESS DEVELOPMENT BASED ON RAMSONS**“

Mentor: Prof dr. Keran Husejn, Member of commission from HiST: **Nils V. Juul**

2. Senida Subasic: **PRODUCT AND PROCESS DEVELOPMENT BASED ON FRESH AND DRIED PLUM**“

Mentor: Prof dr Amra Odobasic, Member of commission from HiST: **Nils V. Juul**

3. Azem Bašić: **PRODUCT AND PROCESS DEVELOPMENT BASED ON WILD BERRIES AND BERRIES**

Mentor: Prof dr Snjezana Maric, Member of commission from HiST: **Nils V. Juul**



# Practical work on Tuzla student thesis at HiST

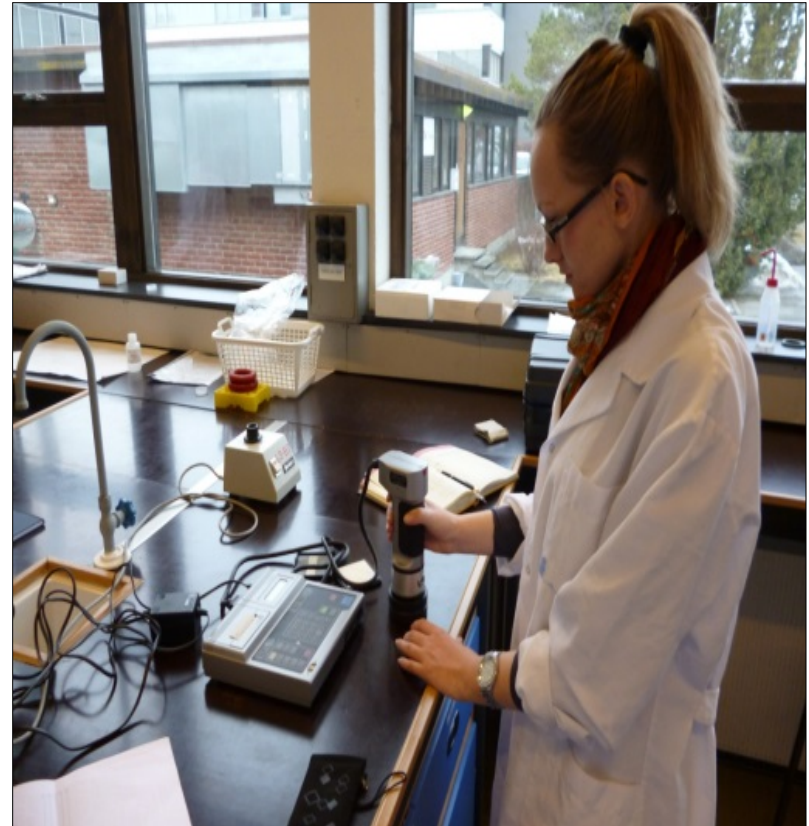
## 2013 Master thesis:

1. Azra Begović: **INFLUENCE OF PROCESSING TO KEEPING OF BIOACTIVE COMPOUNDS FOR SIGNIFICANT SPECIES OF FRUIT IN BIH**

Mentor: Doc dr Ramzija Cvrk

2. Jasmina Mehic: **DERETMINATION OF BIOACTIVE COMPONENTS OF SOUR CHERRY AS SIGNIFICANT FRUITS SPECIES IN BOSNIA AND HERZEGOVINA**

Mentor: Doc dr Zahida Ademović



# Practical work on Tuzla student thesis at HiST

HiST professors taking part in defence of thesis at UNTZ



# Practical work on Tuzla student thesis at HiST

Abstract from student thesis  
presented on Tuzla international  
symposium With Food to Health  
(September 19 2012 and October 16  
2013) and in

**BOOK OF PROCEEDINGS**



# Project activities based on industry needs as described in the Tuzla mapping processes

## Courses for industry

– September 18 and 19 2012 (20 participants):

- **QUALITY AND FOOD ANALYSIS**
- **PRACTICAL ACTIVITIES OF FOOD ANALYSIS**

– October 2013 (as planned; (20 participants):

- **FOOD SENSORY ANALYSIS**
- **DEVELOPMENT OF FOOD PRODUCTS**

# Example of documentation in course for industry

Workshops with industry

Workshops title:

**PRACTICAL ACTIVITIES OF  
FOOD ANALYSIS**

Workshop Leader: Remzija Cvrk

date: **19.09.2012.**



**EDUFOOD**  
TRAINING PROGRAM FOR THE FOOD INDUSTRY  
PROGRAM EDUKACIJE ZA PREHRAMBENU INDUSTRIJU



Univerzitet u Tuzli  
i Univerzitet HiST

Izdaju ovaj

*Certifikat*

**Rijadu Arnautoviću**

Za uspješno završen kurs pod nazivom:

***Kvalitet i analiza hrane***

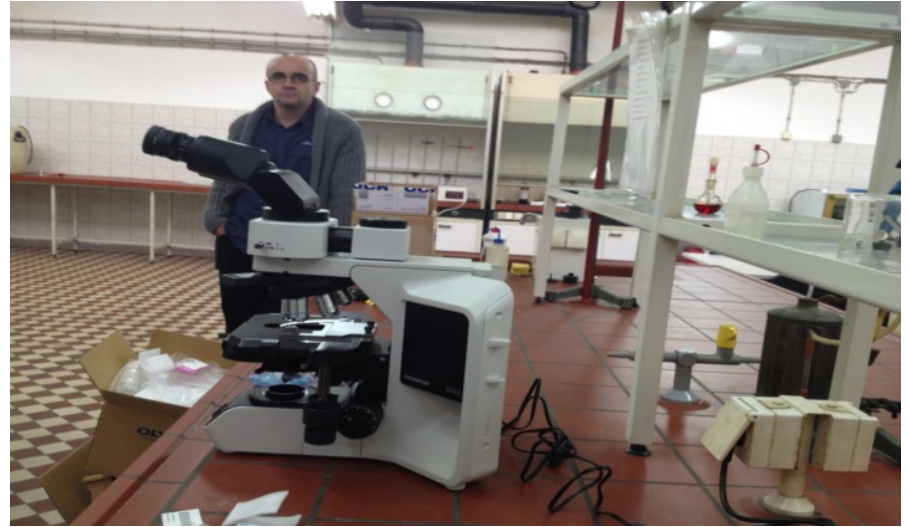
Tuzla 18. i 19. septembar 2012.

Tehnološki fakultet  
Univerziteta u Tuzli  
Regionalni voditelj projekta:  
Prof.dr.Jašić Midhat

HiST Sør-Trøndelag University  
College, Norveška  
Voditelj projekta:  
Niis V Jul

# Project activities based on industry needs as described in the Tuzla mapping processes

- **Upgrading lab equipment at UNTZ 2012**
  - **Spectrophotometer** (Identification food colour, biological active food components; also for students laboratory exercises)
  - **Microscope** (Identification of plant origin, pollen identification, research structure of plant and animals tissue)



makes possible research and teaching activities on new sectors at the Universities as well as making new possibilities within the universities' cooperation for industrial innovation

# Project activities based on industry needs as described in the Tuzla mapping processes

## New sensory lab at UNNS 2012

- For student courses, courses and paid tasks for industry in Novi Sad region and for the UNNS-UNTZ-cooperation.
- Sensory work for HERD project on lamb carcasses **(September 2013)**





# Project activities based on industry needs as described in the Tuzla mapping processes

## Lab investments in 2013

### Not yet Completed

- UNTZ: Water activity measurement, refractometer, upgrading of equipment for texture measurements
- UNNS: Upgrading of equipment for rheological measurements

# Project achievements ...

## Practical use of knowledge

- Contribution to developing the commercial use of Bosnian fruit and berries
- Developing competence on analyses important for determining important quality details in fruit and berries

# Project achievements ....

- **Institutional development and sustainability**

- Institutional agreements (HiST-UNTZ and HiST-UNNS; quite detailed) was worked out late 2011
- A project steering committee (faculty leaders from the cooperating institutions) is meeting twice a year discussing results and plans for the EDUFOOD project.
- Developing – (as well as developing tools for -) for university – enterprise cooperation in the area of food technology
- A few strategic investments in laboratory equipment at the Balkan Universities makes possible research and teaching activities on new sectors at the Universities as well as making new possibilities within the universities' cooperation for industrial innovation.

# Project achievements; knowledge transfer -

## - from HiST to Balkan and Balkan to HiST

- Practical analytical work of Balkan student thesis' at HiST
  - 5 students from Balkan to HiST in 2012; 4 in 2013
- HiST participating in **defending process of student** thesis' at UNTZ
- **HiST giving presentations** at the annually Tuzla symposium **With Food to Health**
- HiST giving input to the **UNNS planning process of sensory lab** construction by arranging visit to NOFIMA sensory lab and as a discussion partner
- A **lecture in food rheology** and advices on practical rheological measurements at HiST laboratories was given by dr. Dokic from Novi Sad
- Developing knowledge of interesting strong areas of competence at each institution **makes research cooperation** in the future more possible

# Project achievements; - knowledge transfer

## – At Balkan University

- **Developing industry cooperation in the education of food technology students** - and in continuing education and courses
- The (project financed -) **construction of a sensory lab** at UNNS and the development of running routines for sensory analyses makes upgrading of university student courses possible
- **Experience from Balkan student** exchange to Norway – and **Norwegian internship** students at Balkan (project synergy; 2 students for 5 months in 2013, also 2 for 2014 is planned)

## – From Balkan university to industry

- UNTZ has **mapped challenges and potentials of improvements in production technology** and hygiene as well as needs for continuing education, courses and workshops in industry. **Several courses are arranged or planned**
- UNNS is developing plans for industry courses and paid tasks in sensory analyses

# Ultimate project goal in Tuzla

- **Establish Centre for knowledge transfer**
  - **The Industry – University** cooperation in the mapping processes and the following project activities on courses for industry, work on student thesis' and laboratory investments makes fundamentals for this ultimate project goal in Tuzla
  - Preliminary strategies, plans were discussed at a **workshop and Project Steering Committee meeting in Trondheim in June 2013.**
  - **Drafts for business plan** will be discussed and evolved in the months to come. **Workshop for development of «centre ownership» in industry?**

# Project cooperation and synergy

- - with the HERD Agriculture projects
  - *Evaluation of fruit genetic resources in Bosnia-Herzegovina with the aim of sustainable, commercial utilization*
    - *Agreement between Dr. Fuad Gasi, University of Sarajevo and Dr. Midhat Jasic, University of Tuzla*
  - *Comparison of lamb carcass and meat quality of breeds in Western Balkans and Norway achieving*
    - *Sensory analyses performed at the sensory lab in Novi Sad (constructed by EDUFOOD funding)*
  - Norwegian food technology students at Balkan Internship



**THANKS FOR YOUR ATTENTION**