



Hochschule Neubrandenburg  
University of Applied Sciences

# Analytical and organoleptic evaluations of plants and products in the Pomerania region

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Funded by the European Union  
(European fund for regional development)



# outline

- project organisation and objectives
- method selection
- experiments
- summary and perspective



# project organisation

partner



Zachodniopomorski  
Uniwersytet  
Technologiczny  
w Szczecinie



experimental field

lead partner



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analytical methods

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Zentrum für  
Lebensmitteltechnologie

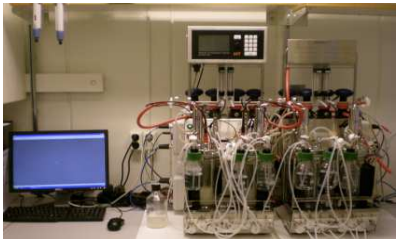
food processing and  
organoleptic analyses



subcontractors















SLU



experiments with yeasts and  
*Drosophila melanogaster*

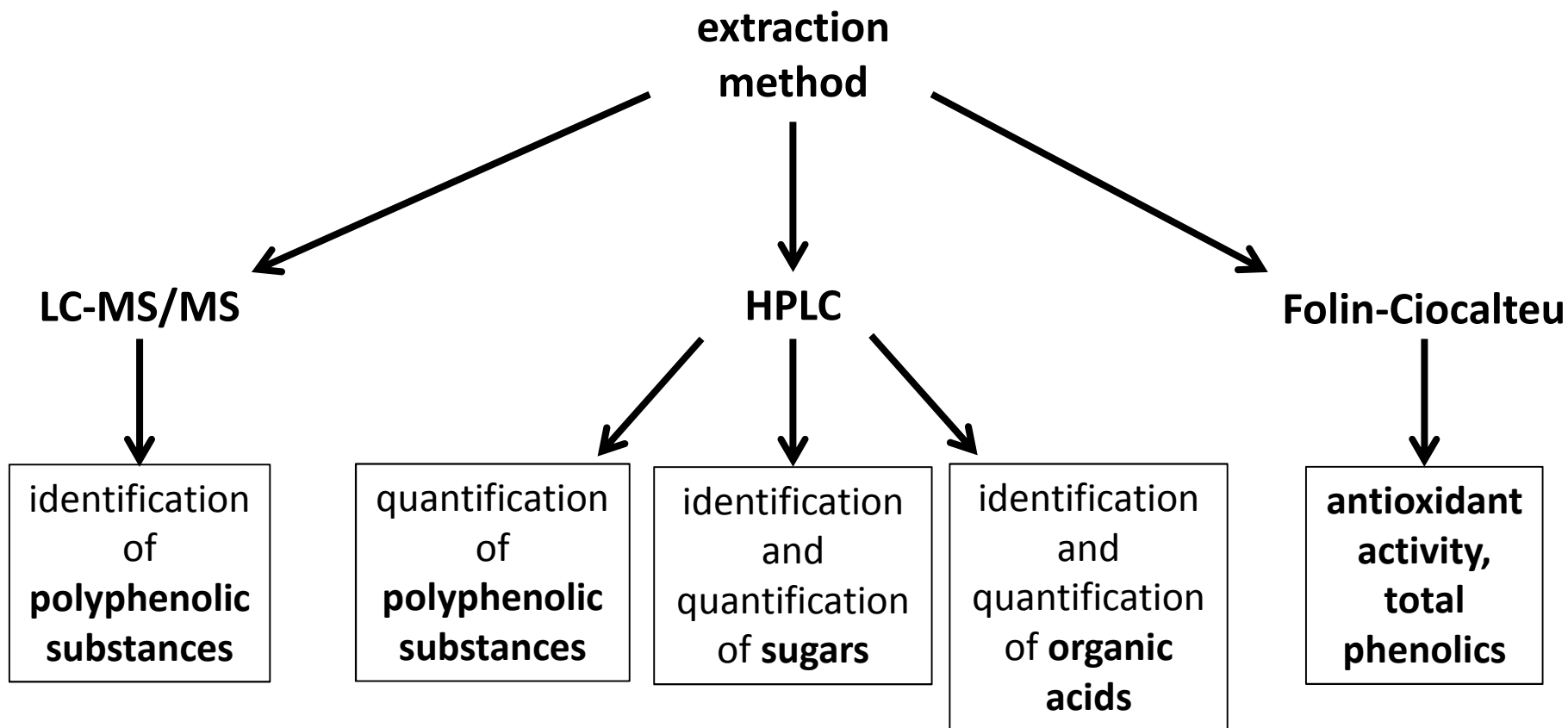


# project objectives

- field experiments 
- cooperation with farmers, institutions and interested people in the Pomerania region  
- generating new utilization concepts for almost all plant parts  
→ FOCUS: content of polyphenolic substances  
- creation of products with plant-derived and regional origin  
→ out of plants grown in the Pomerania region  
→ high content of polyphenolic substances   
- bioassays and organoleptic tests as a basis for consumer-oriented product development    



# analytical methods





# analyses

**samples:** leaves, fruits and  
juices



**LC-MS/MS:**

- hydroxy cinnamic acids (e.g. chlorogenic acid, cinnamic acid)
- flavonoids (e.g. quercetin derivatives, kaempferol derivatives)
- stilbens (resveratrol)

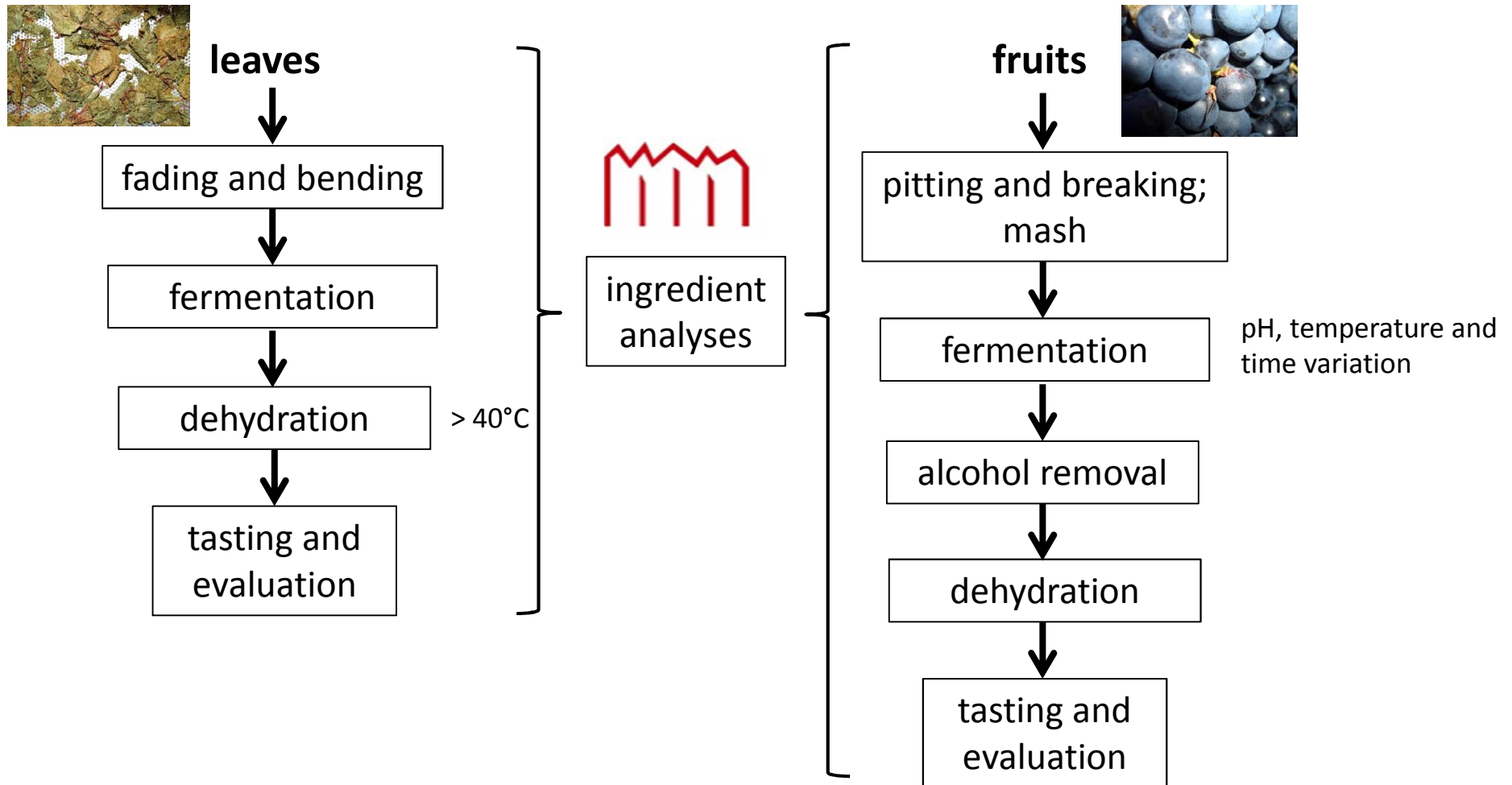
**HPLC:**

- glucose, fructose, saccharose
- citric acid, malic acid, tartaric acid
- quantification of the identified polyphenoles (just started)

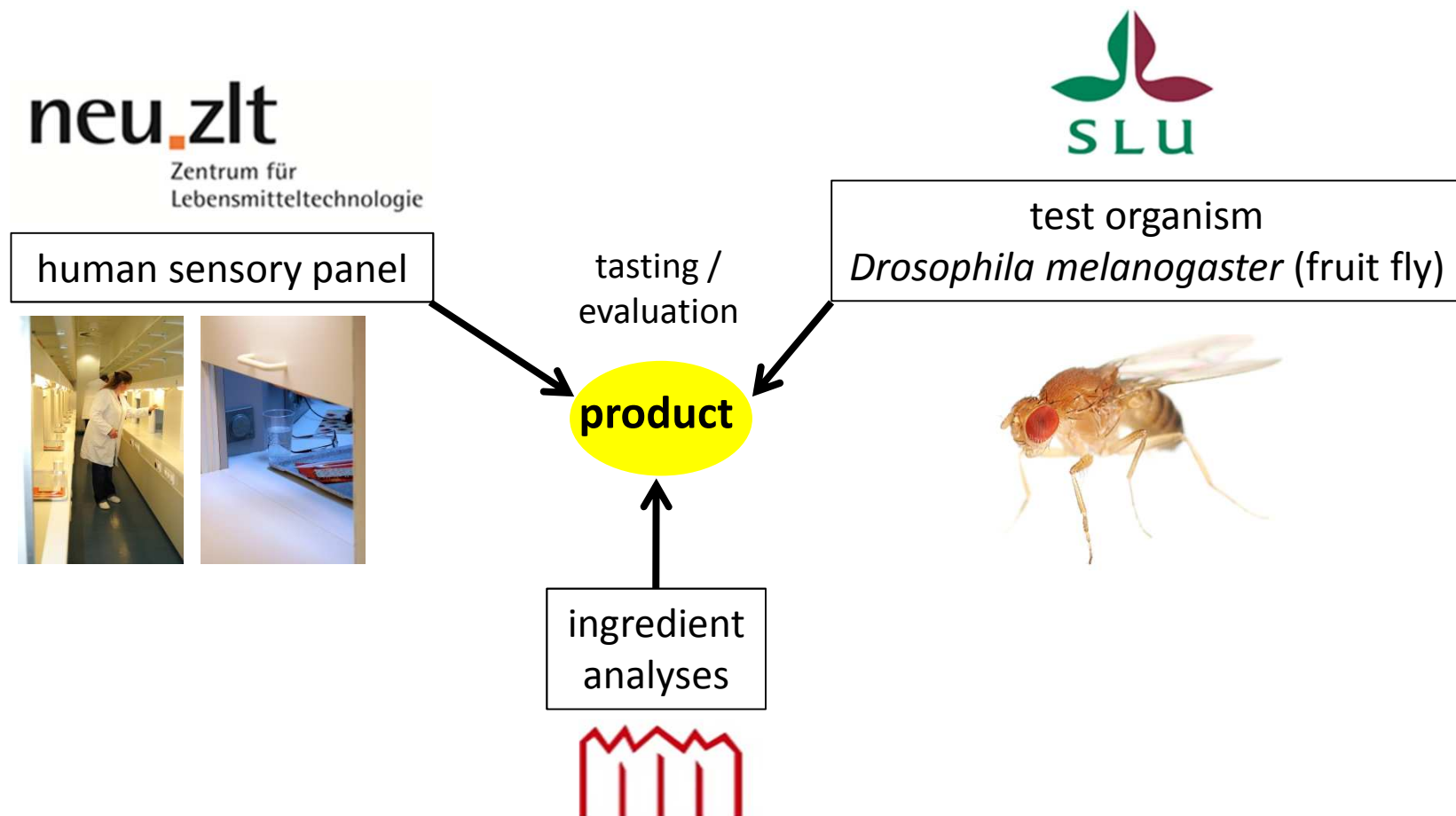
**Folin-Ciocalteu:**

- total phenolics and antioxidant capacity of juices and  
leave extracts

# processing trials

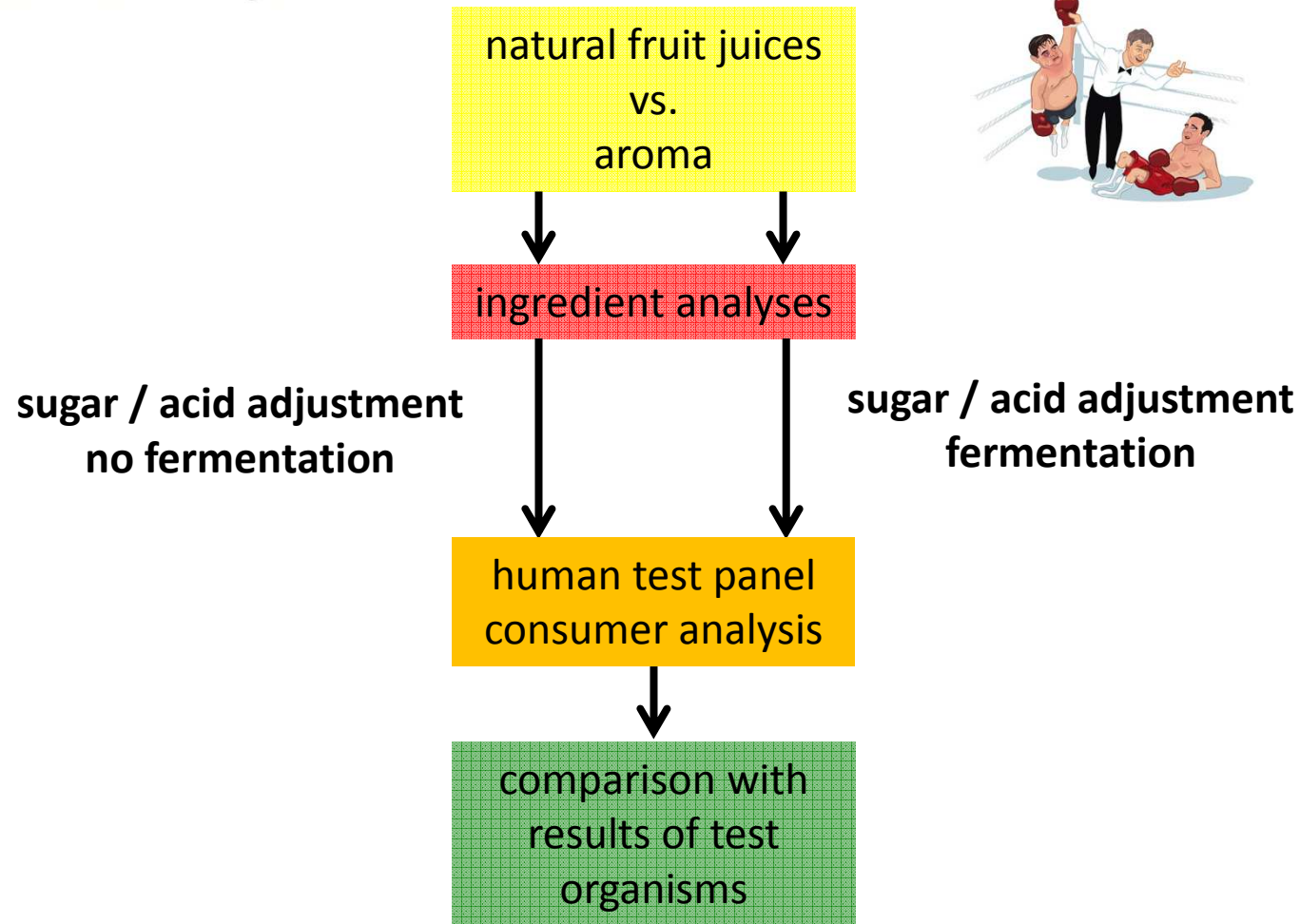


# organoleptic trial





# organoleptic trial



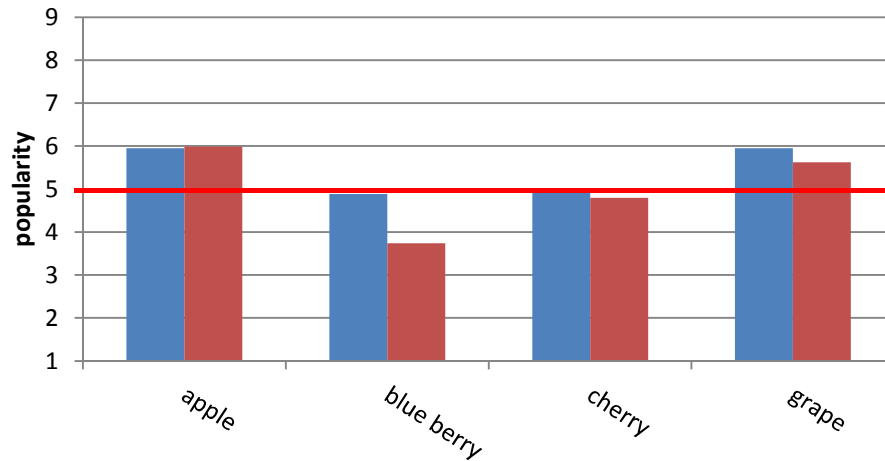
# organoleptic trial

## Questions ???

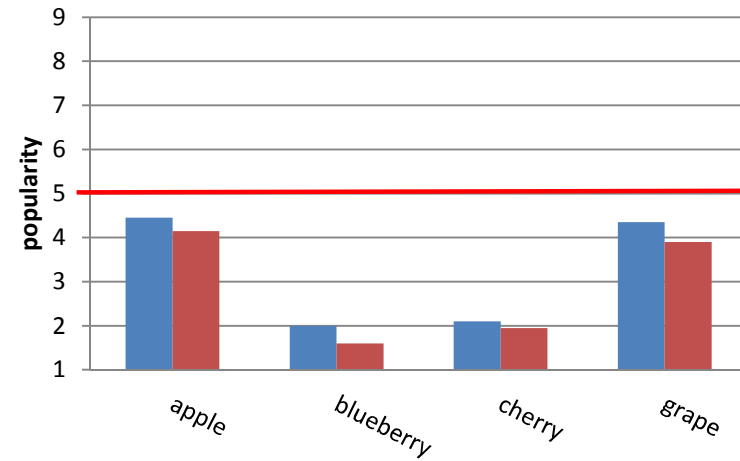
- age and sex of the test person?
  - how often do you drink fruit juices?
  - look and smell of the sample?
  - taste and mouthfeel of the sample?
  - fruitiness?
  - acidity?
  - sweetness?
  - bitterness?
- } **popularity test**
- } **profiling test**

# organoleptic results

popularity test  
fruit juice



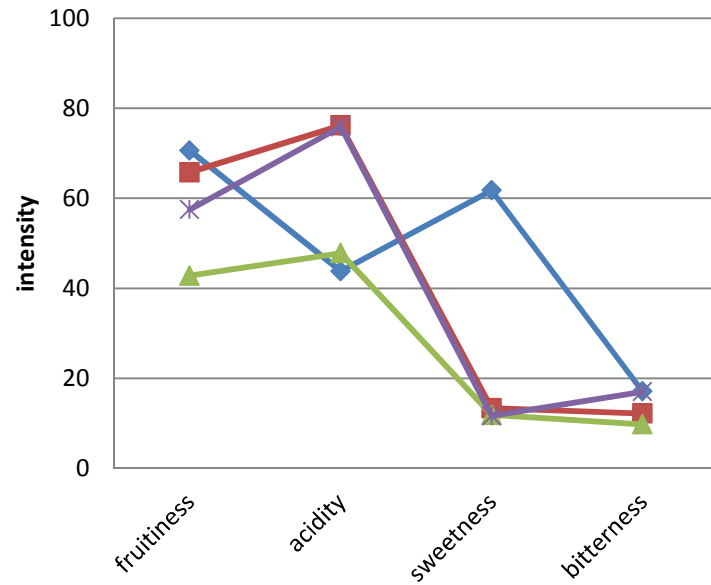
popularity test  
aroma + fruit acids



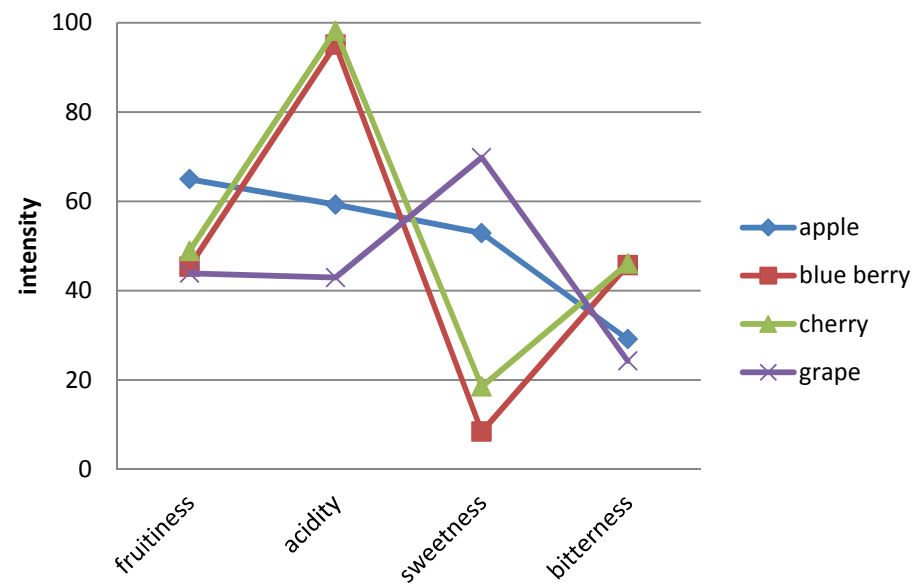
■ overall impression  
■ taste

# organoleptic results

profiling test - fruit juices

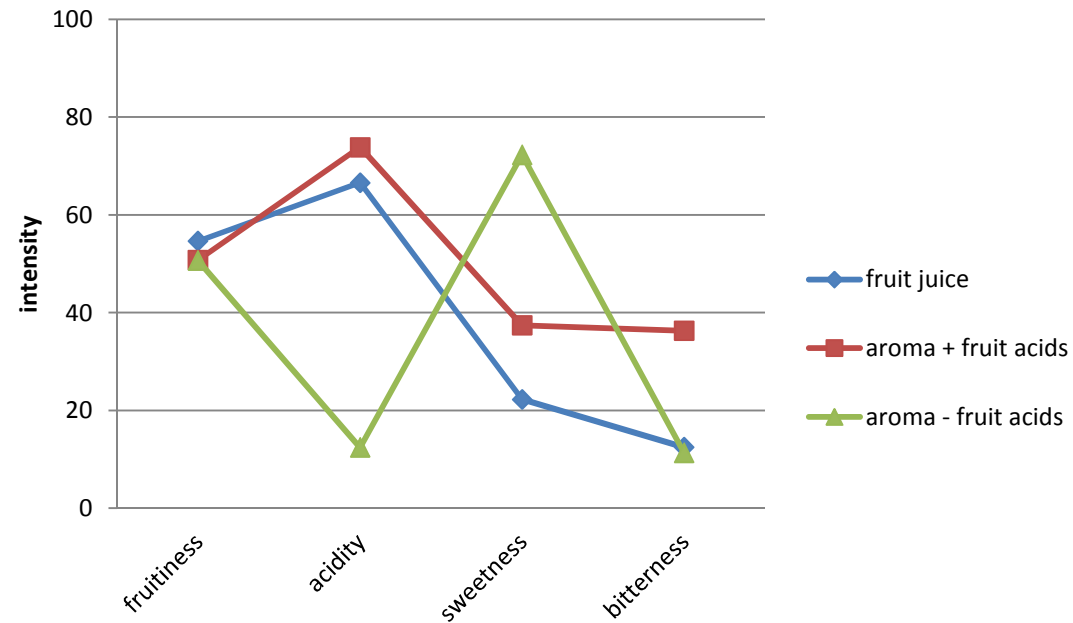


profiling test - aroma + fruit acids



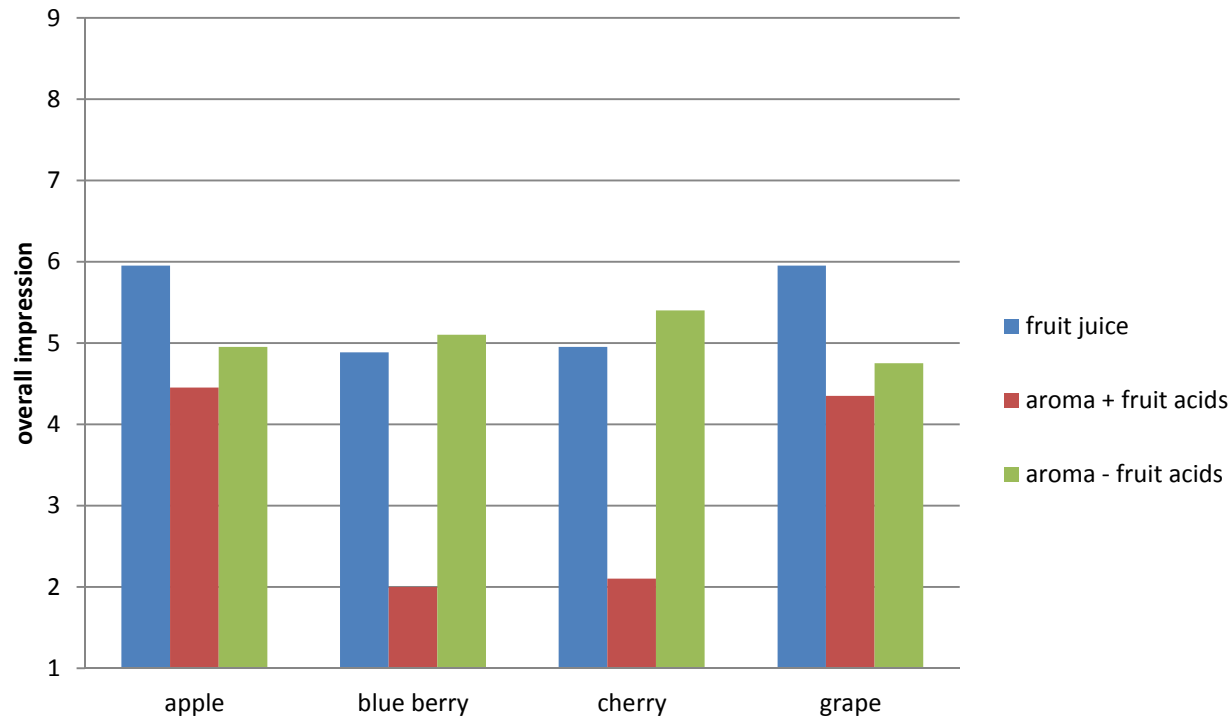
# organoleptic results

evaluation profiling tests



# organoleptic results

evaluation overall impression



A consumer test with 115 test persons produced the same result as the sensory panel!

# summary

- **analytical methods** to evaluate ingredients of fruits, leaves, juices and other products were setup
- **processing trials** have been done
- a **sensory panel** to evaluate different products was setup
- an **organoleptic trial** to compare results of the human sensory panel with results of the test organism *D. melanogaster* was setup

# perspective

**Application of the gotten  
scientific experiences in a  
collaboration with the  
food industry!**





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**Thank you for listening!**

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(European fund for regional development)

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