Internship:
"Bioactive compounds and textural analysis"
within
'CULTURAL HERITAGE OF SMALL HOMELANDS' project under the
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BIOACTIVE COMPOUNDS

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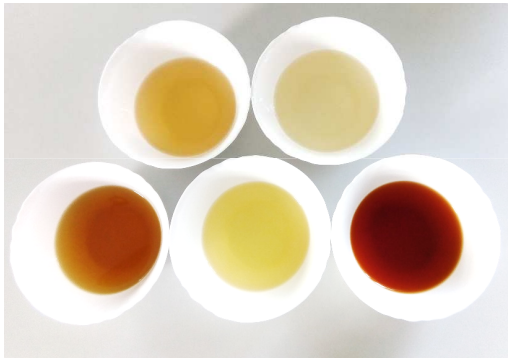
Bioactive compounds (phytonutrients) - characteristics

- secondary metabolites of plants
  - found in fruits, vegetables, whole grains
- heterogeneous class of compounds
  - polyphenolic compounds, carotenoids, tocopherols,
  - phytosterols, and organosulfur compounds
- not essential for humans
  - act mostly as antioxidants
- stimulate defense mechanisms that enhance the response to oxidative stress
- prevent widespread damage or enhance repair
- without recommended daily intake values

Exogenous and endogenous factors

- Origin of polyphenols
- Plant variety
- Growth conditions
  - Stress is usually a signal for the plant to increase polyphenol production
- Storage and ripening
  - stage of maturity at harvest
- Processing
  - drying
  - grinding
  - heating



Polyphenols in selected plants

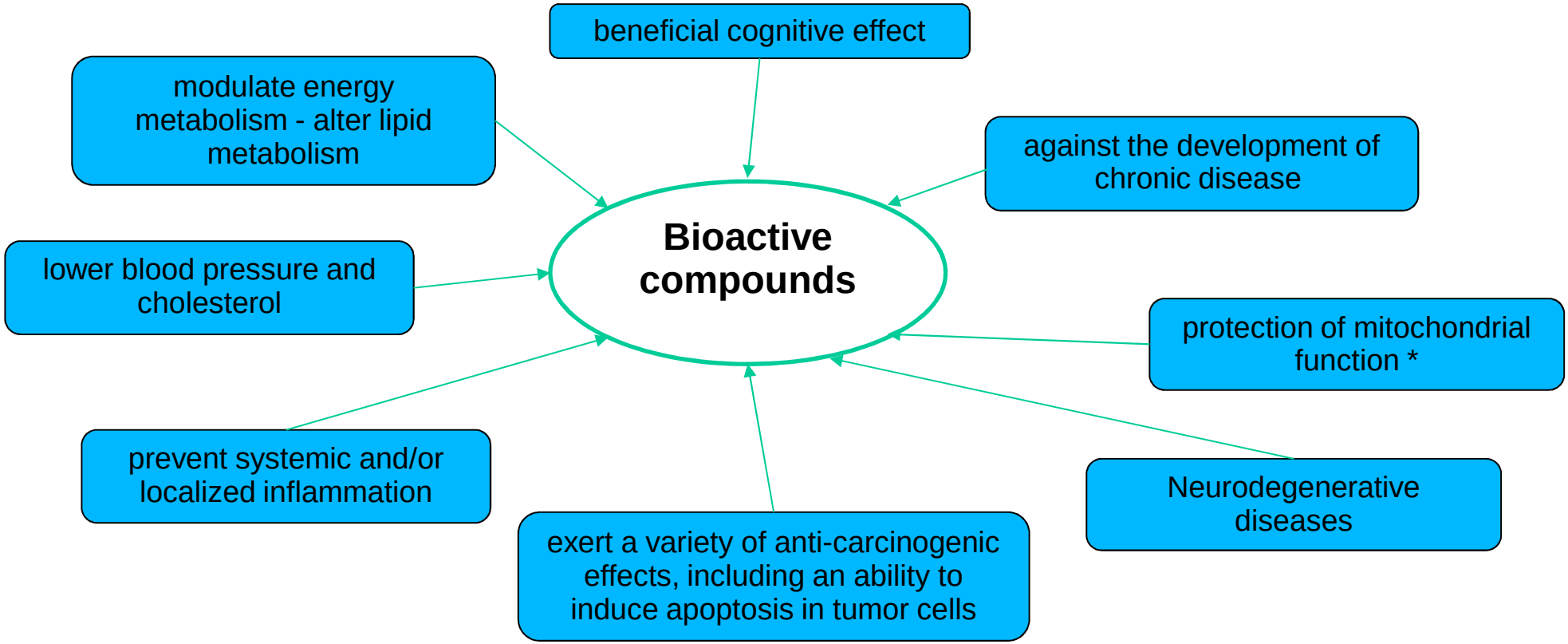
Plant	Edible Part	Concentration mg/100g
Apple	Peel	50 -120
	Flesh	0,2 – 0,9
	Total	5 - 50
Potato	Peel	180 - 5 000
	Flesh	1 - 1000
	Total	10 – 50
Plum, dark	Total	130 – 240
Spinach	Leaf	30 – 290
Green tea	Extract	29 -103
Blackberry	Whole	130 - 405
Organic apricot	Total	54
Conventional apricot	Total	17

Polyphenol bioaccessibility

- the average polyphenol intake through tie diet is around 1 g/day
- difficult to recommend what ‘doses’ of specific polyphenols should be consumed to derive maximum benefit
- taken up primarily or entirely by passive diffusion
- poorly absorbed – improving as a prodrug form ???
- Liquid versus solid food
  - more complex food matrices
    - may delay the availability of polyphenols
    - but they may also stabilize certain compounds or offer protection against further reactions until the site of absorption is reached

Polyphenols in nutrition

- Results of many intervention studies, mechanistic *in vitro* data and epidemiological studies by high dietary intake




Nice spring
days!

Literature

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