POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)

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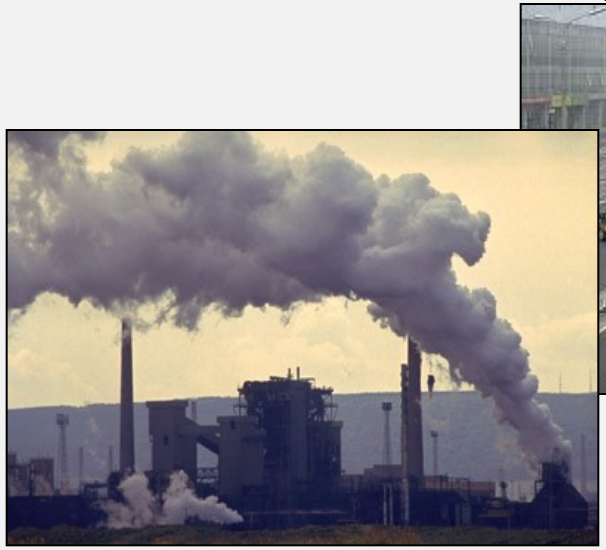
Outline

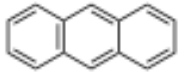
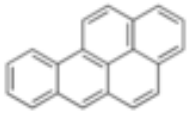
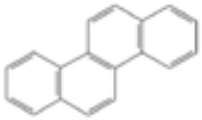
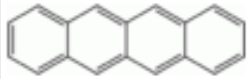
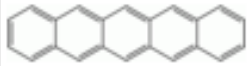
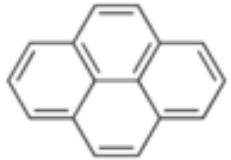
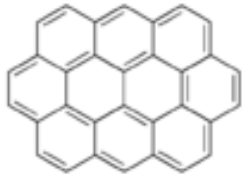
- **General characteristic**
- **Examples of PAHs**
- **Level of contamination in the CR**
- **Transformation**
  - **Transformation**
  - **Conjugation**
  - **Compartmentation**

General characteristic

- atmospheric pollutants
- fused aromatic rings
- lipophilic
- production- incomplete combustion of carbon compounds → transport, industry

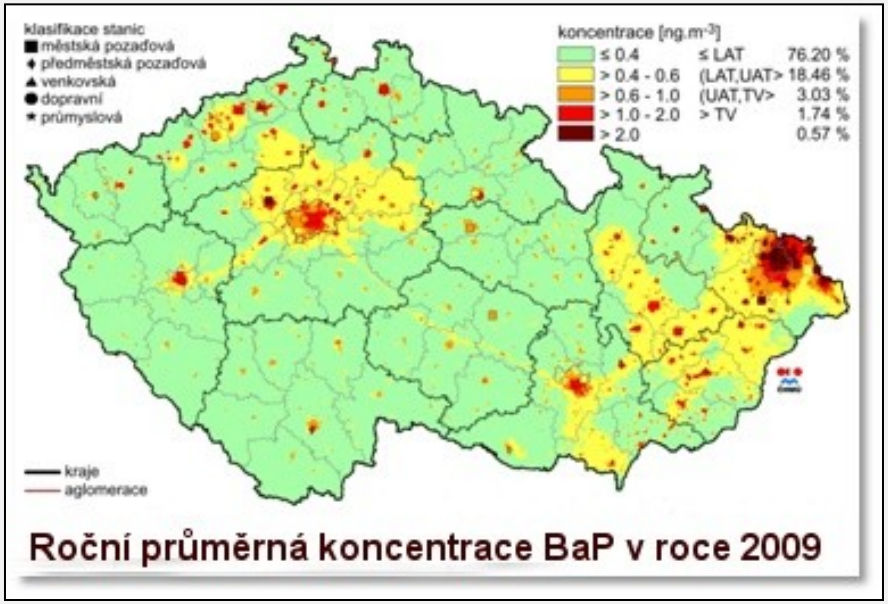



Examples of PAHs

Chemical compound		Chemical compound	
Anthracene		Benzo[a]pyrene	
Chrysene		Coronene	
Corannulene		Naphthacene	
Naphthalene		Pentacene	
Phenanthrene		Pyrene	
Triphenylene		Ovalene	

Level of contamination in the CR

- low number of measurements
- BaP 1 ng/m^3
- 31 stations



Transformation

- in plants, animals

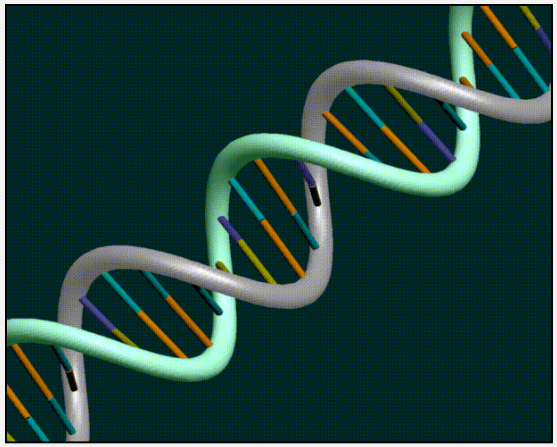
- complex process
  - **Transformation**
  - **Conjugation**
  - **Compartmentation**

- result → **detoxication**
- result → **formation more carcinogenic compounds**

- complex process
  - **Transformation**
  - Conjugation
  - Compartmentation

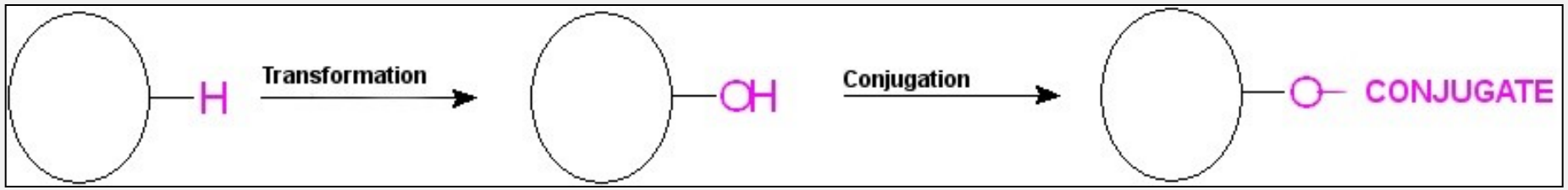
- mitochondria, endoplasmic reticulum

- **oxidation**
  - hydrophylic substance – non-toxic
  - epoxy – dangerous → DNA



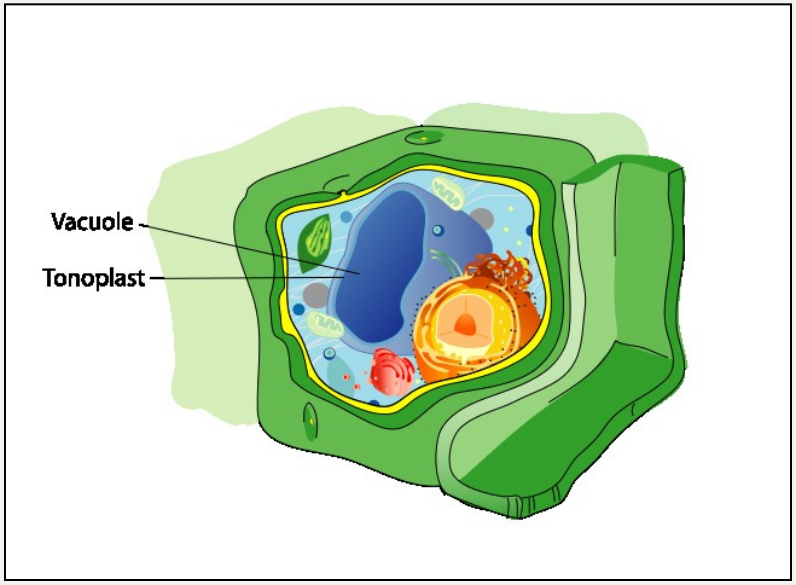
- complex process
  - Transformation
  - **Conjugation**
  - Compartmentation

- reactions with endogenous compounds (carbohydrates, amino acids and glutathione)



- complex process
  - Transformation
  - Conjugation
  - **Compartmentation**

- animals – exclusion
- plants – usually vacuole, cell wall



Summary

- **persistant organic pollutants**
- **carcinogenic, mutagenic, teratogenic**
- **fused aromatic rings**

- **transformation**
  - Transformation
  - Conjugation
  - Compartmentation

Thank you for your attention