

## General considerations on foodstuffs and herbal products

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## Plant material versus conventional drugs

### Herbal products/ Foodstuffs

Mixture of many compounds

Possibility for synergistic/additive interactions

Unpredictable adverse effects and **interactions** with other concurrent treatment

Difficult to standardize treatment (dose of active compounds)

### Conventional drugs

A single compound (mostly)

No possibility for synergistic/additive interactions

Well characterized pharmacology and with better knowledge of adverse effects and interactions

Dose of active compound easily standardized



## Herbal drugs versus foodstuffs

Herbal products	Foodstuffs
Usually no preparation needed	May require preparation (how does this affect the claimed effect?)
Usually packed in fixed doses with recommendations on daily intake	Recommendations for daily intake and dose?
Latin name and Author required for products based on plant material	Is a tomato just a tomato? (> 7000 varieties)
Sold separately from foodstuffs	Functional foods and enriched food will probably be sold among "normal" food (risk in relation to children and pregnant women?)
Risk for complex interactions with concurrent treatment with conventional drugs	



## Concluding remarks

### •What is the state of the art within the field of question?

- Moving away from the "silver bullet" paradigm to recognize that more than one drug is needed for an effective treatment of a given disease

### •What are the hypothesis ?

- That there exists a limited number of unique protein structures, which means that protein substructures are conserved between plants and higher organisms
- This means that compounds isolated from plants, which is designed to bind and modulate proteins and enzymes in plants can bind and modulate activity proteins and enzymes in e.g. humans

### •Which results have been achieved?

- "Of the small molecule new-chemical entities introduced between 1981 - 2007, 51 % were natural products or products derived hereof".*

### •What does future work focus on?

- Applying a more **holistic approach** in the investigation of effects of medicinal plants through methods of **systems biology** (looking at multiple compounds with multiple effects in whole organisms)

