Chapter 1 : The composition of a medicine

A medicine consists of 2 types of substances :
- One or several substances has a demonstrated therapeutic interest : it is the **active substance** (or active principle).
- One or several substances, without therapeutic interest, but incorporated into the medicine to facilitate the administration, the conservation, or the absorption by the body : they are **excipients**.

These excipients can have serious side effects on some people – such as allergies. That's why it is important to read the leaflet before any use to know which excipients are part of the medication.

For the same active substance, both the excipients and the **dosage form** of a medicine can vary.

The dosage form is the physical aspect of the medicine : a capsule, a tablet, a suppository, a syrup...

A medicine **princeps** (or reference medicine) is a medicine finalized by a laboratory which keeps the exclusivity until expiration of the patent (approximately 10 years). After this period, other laboratories have the right to produce **generic medicines** with the same active substance but with different excipients or dosage forms. A generic medicine is cheaper than a princeps because the costs of research and development do not enter into the price.

The **formulation** of a medicine corresponds to its shaping (dosage form and composition). It is chosen in order to have a better assimilation of the active substance. This shaping is done thanks to the excipients.

Exercise 2 : Paracetamol

Here are two extracts of leaflets of different medicines :

> Medicine A, tablet
> Composition for a tablet : paracetamol 500 mg. Other constituents(components) : stearic acid, sodic croscarmellose , povidone K30.
>
> Medicine B, drinkable solution
> Composition for 100 mL of solution : paracétamol 3 g. Other constituents(components) : malic acid, sorbitol, cleansed water.

1. What is the active principle of these two medicines ?
2. How do we call compounds such as stearic acid present in medicines A ?
3. What is the dosage form of each of these medicines ?
4. The posology of the paracetamol is generally 10 mg by kg every four hours. What mass of paracétamol can a child weighing 30 kg ingest every four hours ? Is the medicine A adapted to the children ?

Exercise 3 : Necessary contributions in vitamin C

The daily contribution recommended in vitamin C by the European sanitary authorities is 75 mg for a woman and 90 mg for a man. For certain sports efforts, our body can require up to 2 000 mg of vitamin C. Only 10 mg of vitamin C a day are enough to prevent the scurvy, a grave disease – now very rare.

1. Quote some food renowned for its strong content in vitamin C.
2. In case of fatigue, it is common to complete food by medicines bringing vitamin C, as the one appearing hereby .
   2.1. What mass of vitamin C does a tablet give ?
   2.2. Excluding other sources of vitamin C, how much of this tablet do we have to ingest to avoid scurvy ? Give the result as a fraction of the tablet.