



The Apple

ORIGIN :

Product name : Apple .

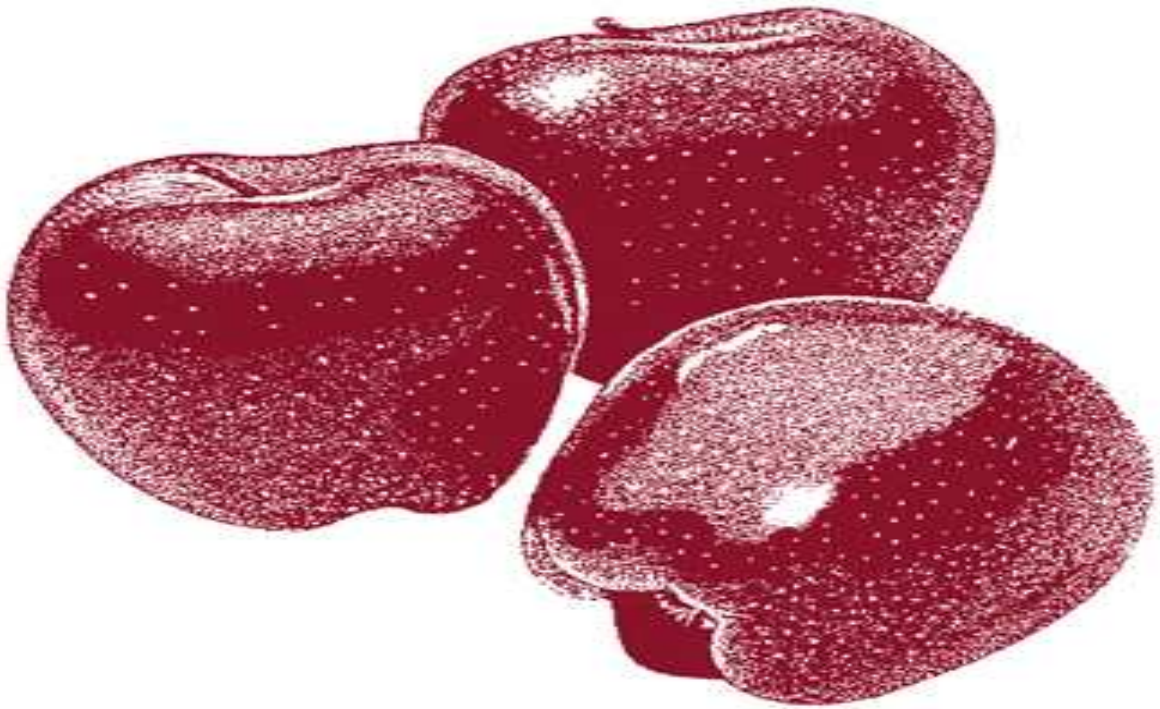
Botanical name : *Malus Domestica Borkh* .

Family name : Rosaceae .

Common name : Apple .

Part used : Fruits .



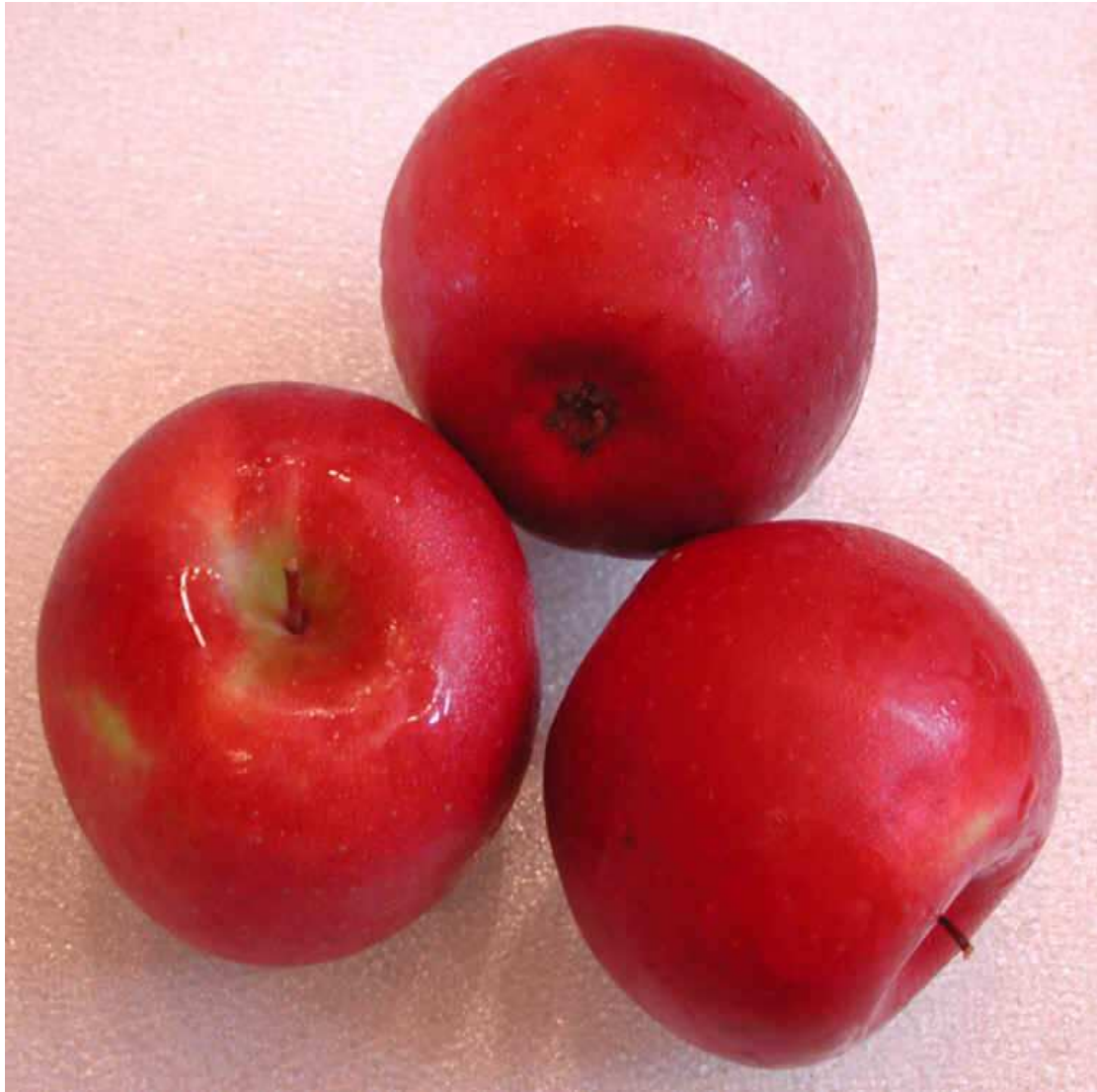


history :

The center of diversity of the genus *Malus* is in eastern Turkey. The apple tree was perhaps the earliest tree to be cultivated, and its fruits have been improved through selection over thousands of years. Alexander the Great is credited with finding dwarfed apples in Kazakhstan in Asia in 328 BCE; those he brought back to Macedonia might have been the progenitors of dwarfing root stocks. Winter apples, picked in late autumn and stored just above freezing, have been an important food in Asia and Europe for millennia .

Apples were brought to North America by colonists in the 17th century, and the first apple orchard on the North American continent was planted in Boston by Reverend William Blaxton in 1625. The only apples native to North America are crab apples, which were once called "common apples". Apple varieties brought as seed from Europe were spread along Native American trade routes, as well as being cultivated on Colonial farms. An 1845 United States apples nursery catalogue sold 350 of the "best" varieties, showing the proliferation of new North American varieties by the early 19th century. In the 20th century, irrigation projects in Washington state began and allowed the development of the multibillion dollar fruit industry, of which the apple is the leading product .

Until the 20th century, farmers stored apples in frostproof cellars during the winter for their own use or for sale. Improved transportation of fresh apples by train and road replaced the necessity for storage. In the 21st century, long-term storage again came into popularity, as "controlled atmosphere" facilities were used to keep apples fresh year-round. Controlled atmosphere facilities use high humidity and low oxygen and carbon dioxide levels to maintain fruit freshness .



cultivation :

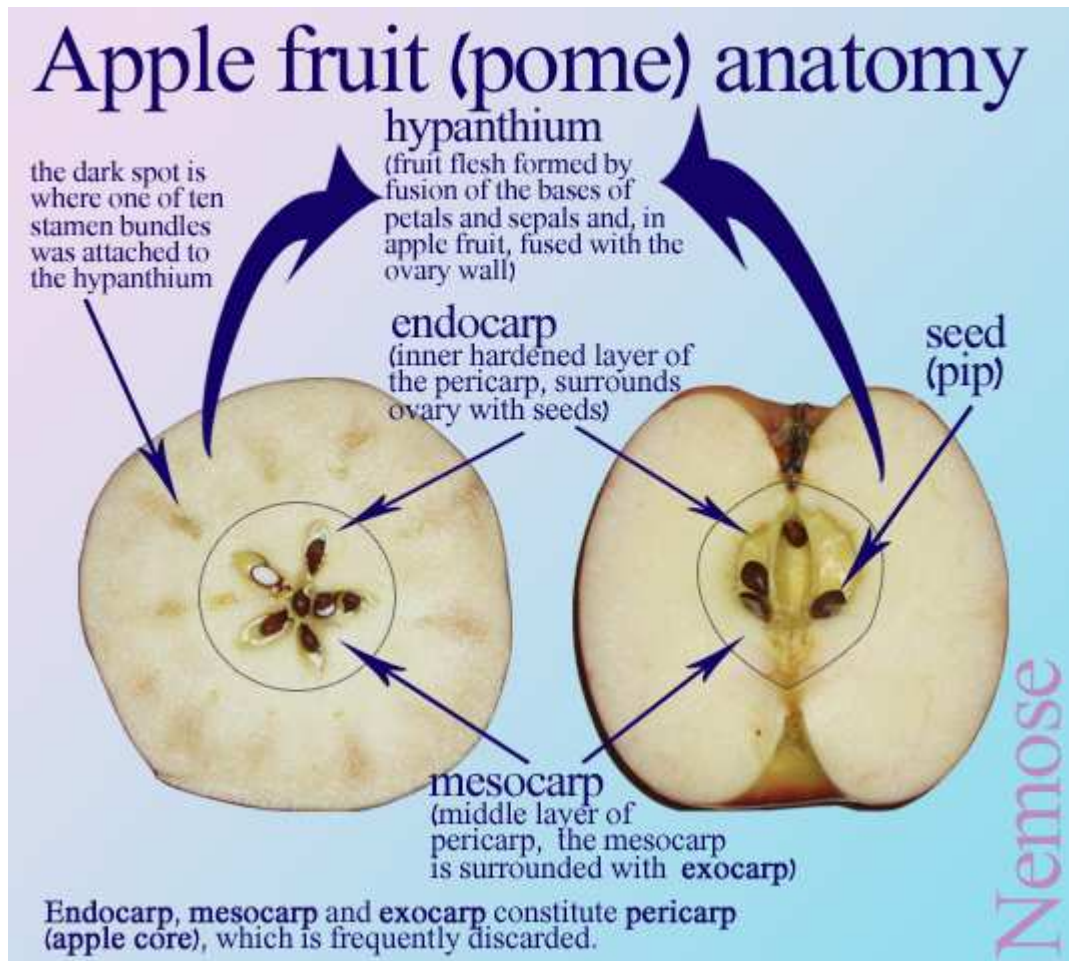
Apples grow on small, deciduous trees. The tree originated in Central Asia, where its wild ancestor, *Malus sieversii*, is still found today. Apples have been grown for thousands of years in Asia and Europe, and were brought to North America by European colonists. Apples have been present in the mythology and religions of many cultures, including Norse, Greek and Christian traditions. In 2010, the fruit's genome was decoded, leading to new understandings of disease control and selective breeding in apple production.

There are more than 7,500 known cultivars of apples, resulting in a range of desired characteristics.



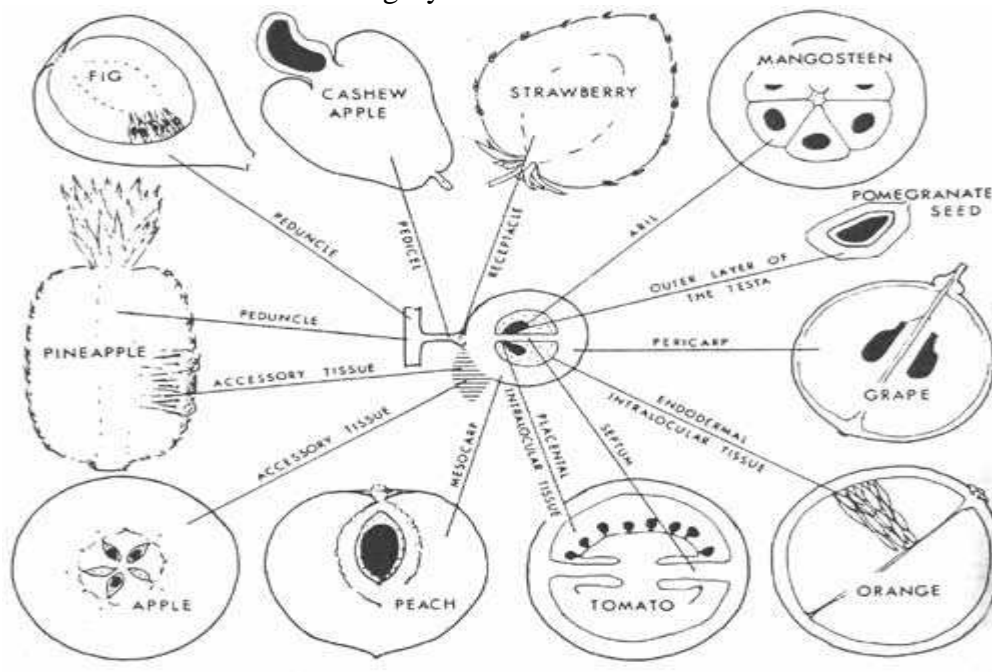
Storage :

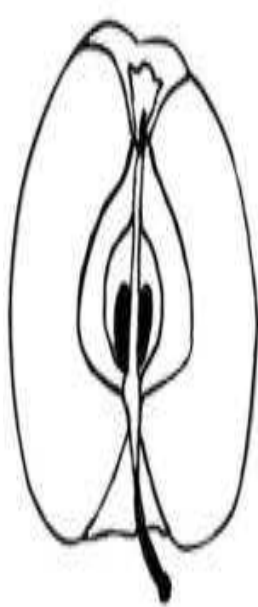
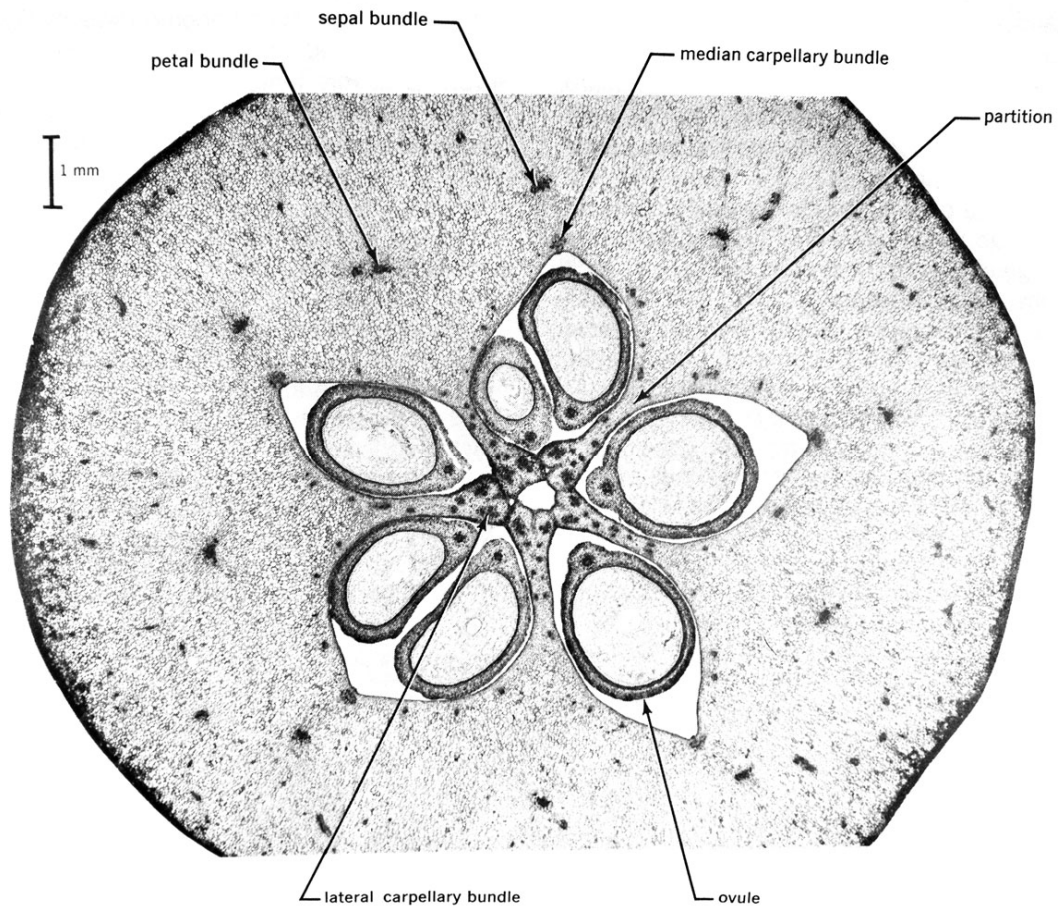
Commercially, apples can be stored for some months in controlled-atmosphere chambers to delay ethylene-induced ripening. Apples are commonly stored in chambers with higher concentrations of carbon dioxide and high air filtration. This prevents ethylene concentrations from rising to higher amounts and preventing ripening from occurring too quickly. Ripening continues when the fruit is removed from storage. For home storage, most varieties of apple can be held for approximately two weeks when kept at the coolest part of the refrigerator (i.e. below 5 °C). Some types, including the Granny Smith and Fuji, can be stored up to a year without significant degradation.



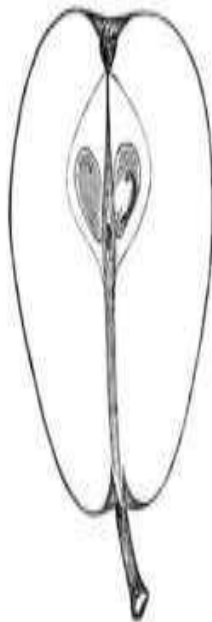
Morphology :

- I. fruit develop from multiple fused carpels and contain more than two seeds.
- II. fall within this category.

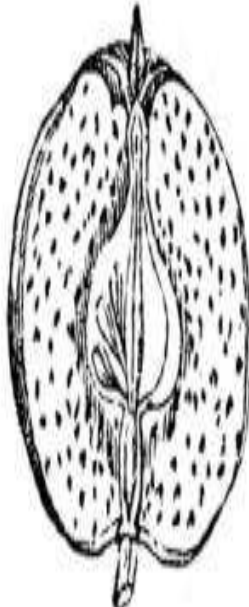




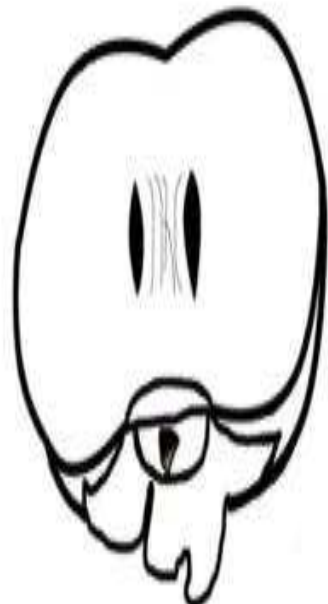
9a Apple



9b Pear

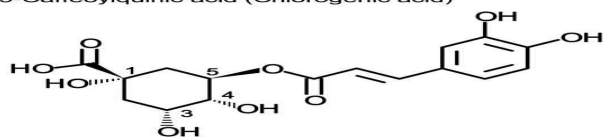


9c Quince

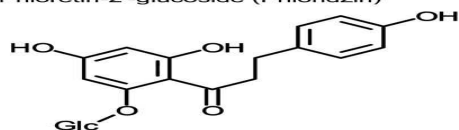


10 Persimmon

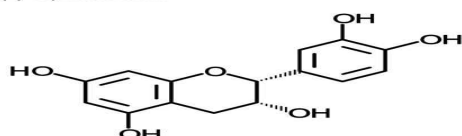
Hydroxycinnamic acids
5-Caffeoylquinic acid (Chlorogenic acid)



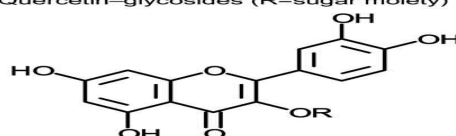
Dihydrochalcones
Phloretin-2'-glucoside (Phloridzin)



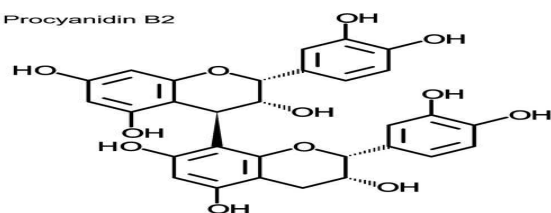
Flavan-3-ols
(-)-Epicatechin



Flavonols
Quercetin (R=H) and Quercetin-glycosides (R=sugar moiety)

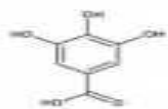


Procyanidin B2

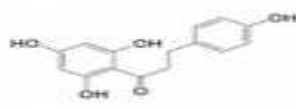


active constituents :

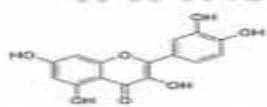
- I. good source of phenolic phytochemicals .
- II. polyphenols " gallic acid , phloretin . "
- III. flavonoids " quercetin , catechin , phloridzin
- IV. minerals .
- V. dietary fiber



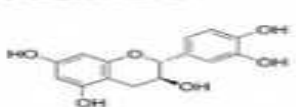
Gallic acid



Phloretin



Quercetin



Catechin

USES

uses :

I. help to reduce risk of some cancers .



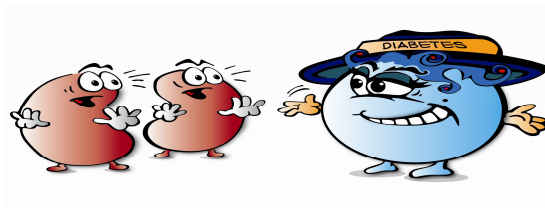
II. cardiovascular disease .



III. asthma .



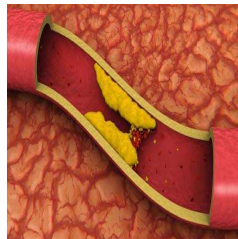
IV. diabetes .



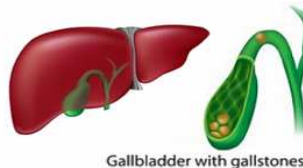
V. very strong antioxidant activity .



VI. decrease lipid oxidation and lower cholesterol .



VII. Softening and passing gallstones.





VIII. Weight loss.

Metabolic syndrome
(Syndrome X)

- Central obesity
- High blood pressure
- High triglycerides
- Low HDL-cholesterol
- Insulin resistance



IX. Metabolic syndrome.



X. fever .



XI. Scurvy.



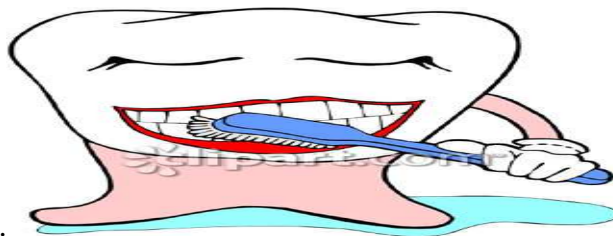
XII. Warts.

Plantar

Periungual

Common

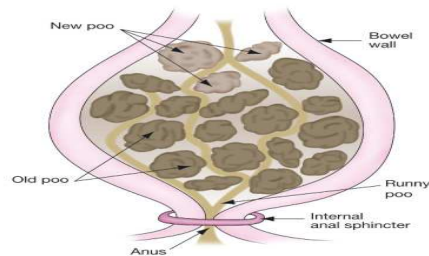
Flat



XIII. Cleaning teeth.



XIV. Diarrhea.



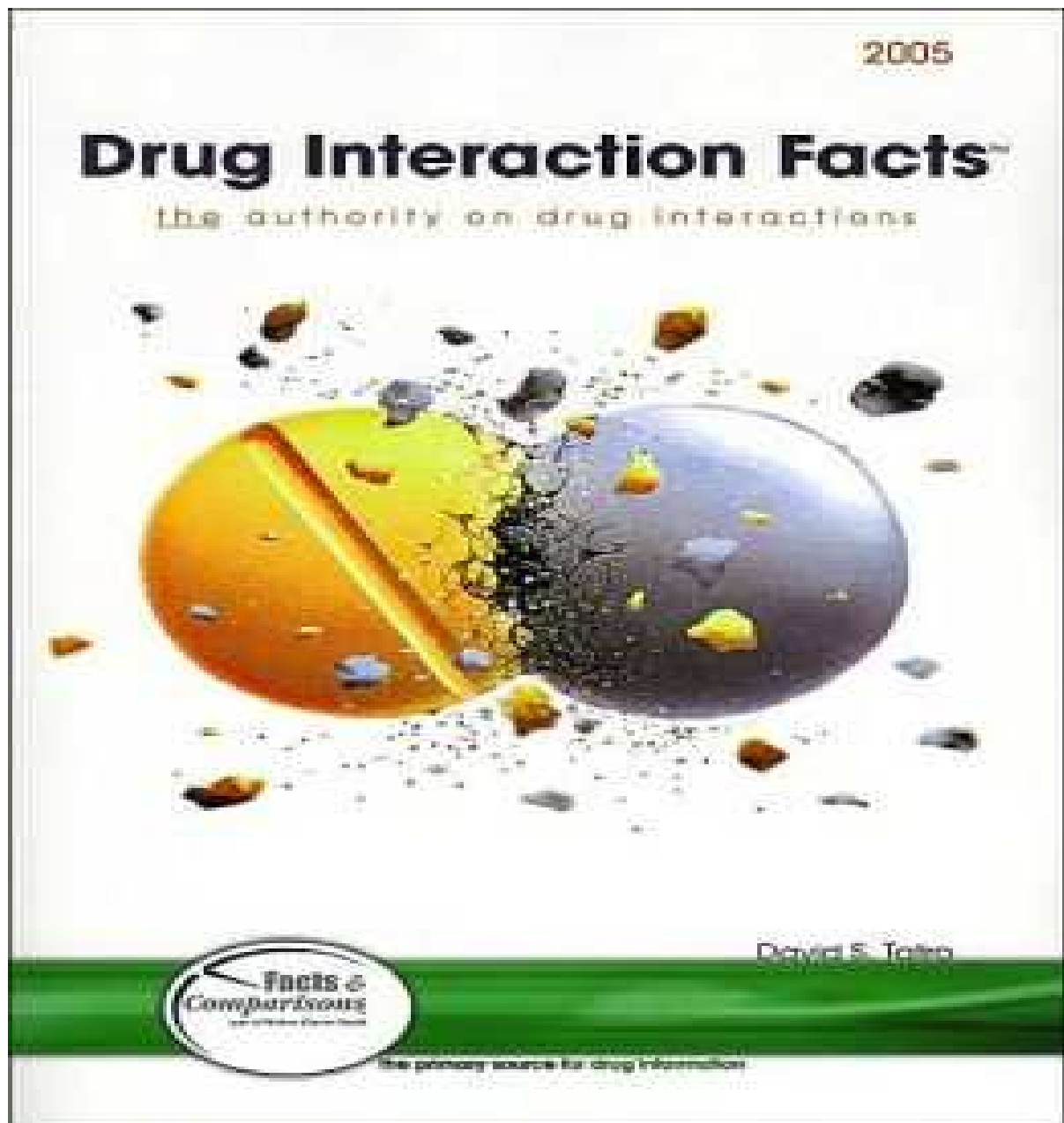
XV. Constipation.



side effects :

1. Apples are safe for most people, as long as the seeds aren't eaten.
2. No side effects are generally known or expected to occur with apple fruit.
3. may cause an allergic in people who are sensitive to the Rosaceae family.





interactions :

Fexofenadine (Allegra) interacts with APPLE .

- Apple juice can decrease how much fexofenadine (Allegra) your body absorbs. Taking apple along with fexofenadine (Allegra) might decrease the effectiveness of fexofenadine (Allegra).



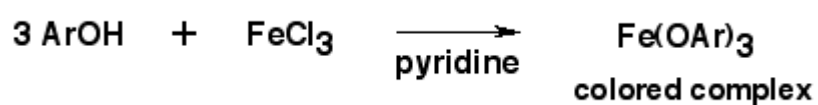
chemical test :

test for phenol :

Phenols form a violet complex with Fe(III), which is intensely colored. This is the basis for the test

Procedure :

The iron (III) chloride test for phenols is not completely reliable for acidic phenols, but can be administered by dissolving 15 mg of the unknown compound in 0.5 mL of water or water-alcohol mixture and add 1 to 2 drops of 1% aqueous iron (III) chloride solution



test for flavonoids :

.Formation of a precipitate is a positive test

Procedure :

Add a solution of 1 or 2 drops or 30 mg of unknown in 2 mL of 95% ethanol to 3 mL of 2,4-dinitrophenylhydrazine reagent. Shake vigorously, and, if no precipitate forms immediately, allow the solution to stand for 15 minutes

.The 2,4-dinitrophenylhydrazine reagent will already be prepared for you

