CHLOROPHYLL

**CHLOROPHYLL A**
A type of porphyrin

Chlorophyll is the chemical that gives plant leaves their green colour. Plants require warm temperatures and sunlight to produce chlorophyll - in autumn, the amount produced begins to decrease, and the existing chlorophyll is slowly broken down, diminishing the green colour of the leaves.

**LUTEIN**
A type of carotenoid

Carotenoids and flavonoid pigments are always present in leaves, but as chlorophyll is broken down in the autumn their colours come to the fore. Xanthophylls, a subclass of carotenoids, are responsible for the yellows of autumn leaves. One of the major xanthophylls, lutein, is also the compound that contributes towards the yellow colour of egg yolks.

**B-CAROTENE**
A type of carotenoid

Beta-carotene is one of the most common carotenoids in plants, and absorbs green and blue light strongly, reflecting red and yellow light and causing its orange appearance. It is also responsible for the orange colouration of carrots.

Carotenoids in leaves start degrading at the same time as chlorophyll, but they do so at a much slower rate; beta-carotene is amongst the most stable, and some fallen leaves can still contain measurable amounts.

**FLAVONOL**
A type of flavonoid

FLAVONE
A type of flavonoid

**VIOLAXANTHIN**
A type of carotenoid

**LYCOPENE**
A type of carotenoid

**ANTHOCYANINS & CAROTENOIDS**

Unlike the carotenoids, anthocyanin synthesis is kick-started by the onset of autumn - as sugar concentration in the leaves increases, sunlight initiates anthocyanin production. The purpose they serve isn’t clear, but it’s been suggested that they help protect the leaves from excess light, prolonging the amount of time before they fall.

ANTHOCYANINS
(general structure)

Sugar