

## Column chromatography - separation of leaf pigments

Article no: P3120300



### Principle

In this investigation, a uniformly green raw extract of fresh leaves is first separated into different fractions by means of column chromatography. To do so, the extract is added to a column filled with starch and drawn through the column under slightly reduced pressure (to increase the flow rate of the mobile phase) with ligroin as the eluent. A separation occurs in a clearly recognisable, broad, yellow area and in a narrow, green band. This means that the xanthophylls (yellow) are separated from the chlorophylls (green). If the vacuum is reduced during the separation, the separation is much better, but then separation also takes considerably longer. Each of the separation fractions can be collected individually and characterised by recording their absorption spectra, if necessary, or examined for fluorescence by radiation with UV light.

### Benefits

- Optimised for demonstration experiments: Transformation from horizontal into vertical direction
- Practical water jet pump for easy generation of the required negative pressure
- Didactic introduction to a basic separation process

### Tasks

Investigate different leaf pigments using column chromatography.

### Learning objectives

- Chlorophyll
- Column chromatography
- Leaf pigments
- Xanthophyll

## Scope of delivery

Frame for complete experiments	45500-00	1
Rear-cover for compl.-exp. panel	45501-00	1
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Panel for complete experimental setups	45510-00	1
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Clamping holder,18-25mm	45520-00	2
Clamping holder,turnable,8-10mm	45522-00	1
Clamp on holder	02164-00	1
Universal clamp	37715-01	1
Spring plugs, 50 off	45530-00	1
Column for ion-exchange chromatography	35025-01	1
Vacuum adaptor, straight, GL25/12	MAU-27228500	1
Erlenmeyer flask, GL 25/12, 100ml	MAU-27228600	4
Secure bottle, 500 ml, 2 x Gl 18/8, 1 x 25/12	34170-01	1
Spring manometer, 0...-1000 mbar	34170-02	1
Glass tubes, right-angled, 150 x 80 mm	MAU-10022500	1
Stopcock,3-way,t-shaped, glass	36731-00	1
Air control valve	37003-00	1
Mortar w. pestle, 325 ml, porcelain	32605-00	1
Funnel, glass, top dia. 50 mm	34459-00	1
Round filter, different sizes	32977-04	1
Erlenm.flask wide neck 250ml PN45	36434-00	1
Pipette, w. rubber bulb, long tip	64838-00	1
Graduated cylinder, Borosilicate, 1000 ml	36628-00	1
Volumetric pipette, 50 ml	36581-00	1
Graduated pipette 25 ml	36594-00	1
Pipettor	36592-00	1
Glass rod,boro 3.3,l=300mm, d=9mm	40485-07	1
Water jet pump, plastic	02728-00	1
Scissors, straight, 180 mm	64798-00	1
Rubber hose for vacuum	39286-00	3
Glass wool 10 g	31773-03	1
Sea sand, purified 1000 g	30220-67	1
Starch,soluble 100 g	30227-10	1

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Petroleum ether, 40-60 °C, 500 ml	30184-50	1
Propyl alcohol,normal 250 ml	31754-25	1

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