

The effect of gravity and centrifugal force on plants

Article no: P4050200



Principle

The main shoot of a plant generally follows a perpendicular direction away from the centre of gravity of the earth (negative geotropism), whereas the main root grows towards the centre of gravity (positive geotropism). If however the plant is placed on a rotating horizontal disk, this will alter the direction of growth of the shoot and of the root.

Benefits

- Quantitative determination of gravity effects on plant growth

Tasks

1. Measure the alignment of shoots and roots under the effect of centrifugal forces which are less than, equal to or greater than gravity
2. Raise sunflower seedlings in small beakers in a rotating drum
3. Set different centrifugal forces by changing the speed of rotation of the drum motor.

Learning objectives

- Positive geotropism of roots
- Negative geotropism of shoots
- Centrifugal force and rotational speed
- Statoliths
- Geotropism

Scope of delivery

Strobe drum	65976-00	1
Insertion piece for centrifuge	65976-10	1
PHYWE Power supply, 230 V, DC: 0...12 V, 2 A / AC: 6 V, 12 V, 5 A	13506-93	1
Connecting cable, 32 A, red, various lengths	07362-01	1
Connecting cable, 32 A, blue, various lengths	07362-04	1
Support base, variable	02001-00	1
Boss head	02043-00	1
Stand rods, stainless steel, various sizes	02032-00	2
Stand rods, stainless steel, various sizes	02031-00	1
Beakers, Boro, high form, various sizes	46025-00	10