

Thin layer chromatography is a process used to identify the components of a mixture accurately.

We can use this to look at the photosynthetic pigments in basil leaves.

For this experiment you will need:

A thin layer chromatography sheet.

A small bottle.

A pair of scissors.

A pencil.

A ruler.

A capillary tube.

A pipette.

Basil leaves.

A pestle and mortar.

Propanone and a solvent.

Let's start the experiment.

First prepare strips of TLC plates.

TLC plate is a plastic plate coated with a fine layer of silica powder, which can absorb liquids.

Use scissors to cut the TLC sheet to size, so it fits in the small bottle.

Make a pencil mark about one centimetre from the bottom of the strip of TLC plate.

This will be the start point.

Grind a torn basil leaf in a pestle and mortar.

Then add propanone.

Grind again to extract as much of the colour as possible.

Use a very thin capillary tube to apply a few small dots of the extract along the start point line.

The smaller the dots, the better the separation will be.

A small amount of chromatography solvent is put in the bottom of the bottle.

Make sure the TLC strip is not touching the sides of the container.

One way of doing this is cutting a slit in a rubber bung to slot the top into.

Then the TLC strip is placed in the solvent.

The top is then replaced and you now wait to see what happens.

When the solvent has travelled a significant way up the TLC strip, remove it from the jar and immediately mark the point where the solvent reached, before it dries.

Now you can examine it to see what colour lines or spots you have.

This produces a chromatogram, where different samples can be compared to a reference material.

For more accurate identification, the retention factor of components can be calculated and analysed.