

TLC of Pigments from Spinach

Question 1: What is the purpose of **mixing hexane and acetone** while grinding the spinach?

Question 2: Why the spotting of samples is done using **small capillary**?

Question 3: Based on the experiment, **how many pigments are present** in the spinach sample?
Explain your answer.

Question 4: Which spot is the **most soluble**? Justify your answer.

Question 5: What is the R_f value of the pigment which is the **most polar**?

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Answer 1: The purpose of mixing hexane and acetone while grinding the spinach is because spinach contains many different pigments for photosynthesis. Some of these are more soluble in hexane and others are more soluble in acetone. By using a mixture of both solvents, **extraction of all the different pigments can be achieved.**

Answer 2: The spotting of samples is done using small capillary for a **precise application of the samples onto the thin layer plate**, preventing the samples from spreading too much and causing overlapping of spots.

Answer 3: There are **5 pigments present** in the spinach sample due to the **presence of 5 distinct spots** on TLC.

Answer 4: The spot at the solvent front is the most soluble since it **travels the furthest**, indicating that it is the most soluble with the mobile phase.

Answer 5: The pigment that is the most polar is the pigment that **travels up the least.**

$$R_f = 0.5 \text{ cm} / 5.2 \text{ cm}$$

$$= 0.10$$