Transport in plants – 2021/20 GCE AS Biology A

1. Nov/2021/Paper-H020/01/No.5

The rate of transpiration of water can be estimated by recording the rate of water uptake using a potometer. Two potometers were set up, one with large leaves and one with small leaves. A calibrated capillary tube that had a diameter of 1 mm was used to introduce the bubble.

Which of the options, **A** to **D**, shows the most appropriate units to compare the rate of transpiration of large leaves compared to small leaves?

A $mm^2\,cm^{-1}\,min^{-1}$

B $mm^3\,cm^{-1}\,min$

C $mm^2\,cm^{-2}\,min^{-1}$

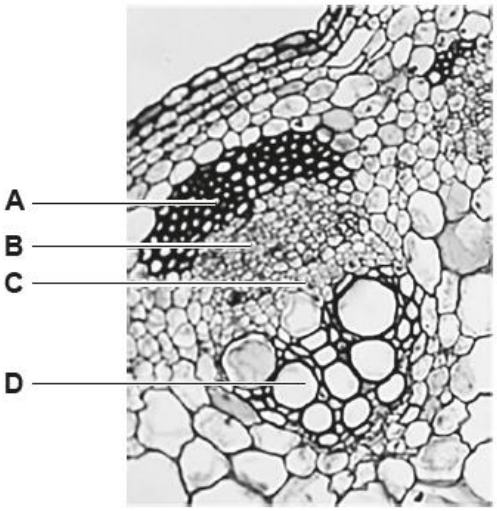
D $mm^3\,cm^{-2}\,min^{-1}$

Your answer ☐ **[1]**

2. Nov/2021/Paper-H020/01/No.10

The image below shows a transverse section of a stem vascular bundle of a sunflower, *Helianthus annuus*.

Which of the options, **A** to **D**, labels the xylem vessels?



Your answer ☐ **[1]**

3. Nov/2020/Paper-H020/01/No.24

A student was comparing transpiration rates in tomato leaves and watermelon leaves. They selected eight separate leaves on different tomato plants and sealed a plastic bag over each leaf. They repeated this process for the watermelon plants. The plastic bags were left for six hours then they used a syringe to collect any water inside the plastic bag. The volume of water was recorded.

An example of their method can be seen in Fig. 24.1.

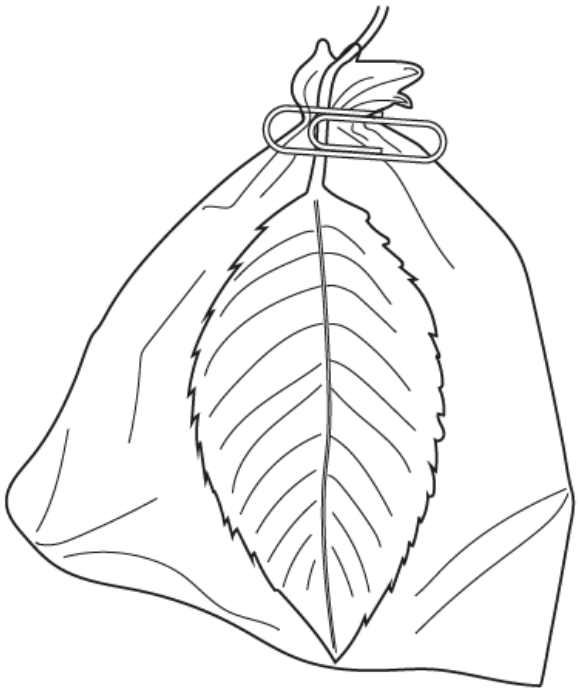


Fig. 24.1

(a) Identify **two** problems with this method and **for each** problem suggest how the method can be improved.

1 .....

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2 .....

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[4]

(b) The results of the experiment are shown in Fig. 24.2.

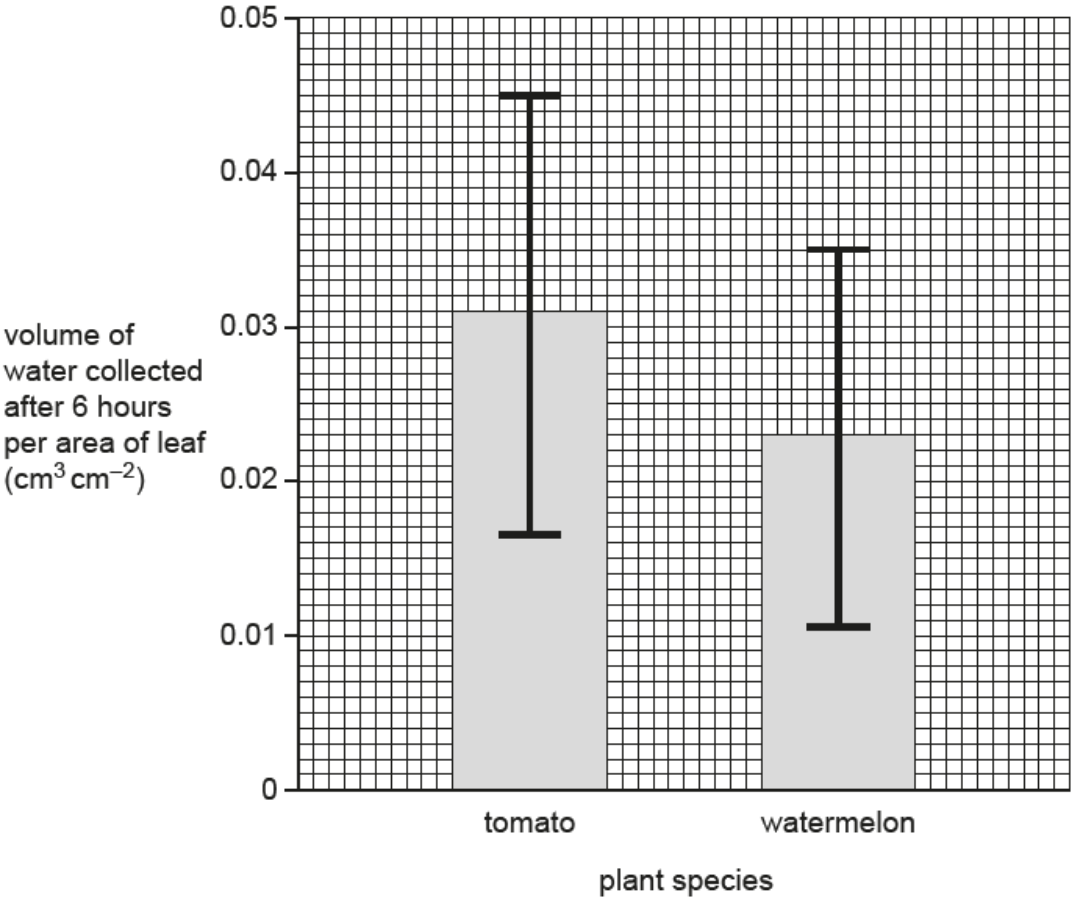

Fig. 24.2

What conclusion can be drawn from this graph? Justify your answer.

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..... **[2]**