

2 Scientists investigated the effect of abscisic acid (ABA) on reducing water loss in plants. The scientists predicted that ABA, as well as stimulating stomatal closure, also reduces water loss in plants in other ways.

The scientists used a mutant variety of thale cress, *Arabidopsis thaliana*, that has stomata that do **not** respond to ABA. When ABA is present, the stomata of the mutant variety remain open.

The scientists sprayed different concentrations of ABA on the leaves of the mutant variety and measured the transpiration rates of the plants.

The results are shown in Fig. 2.1.

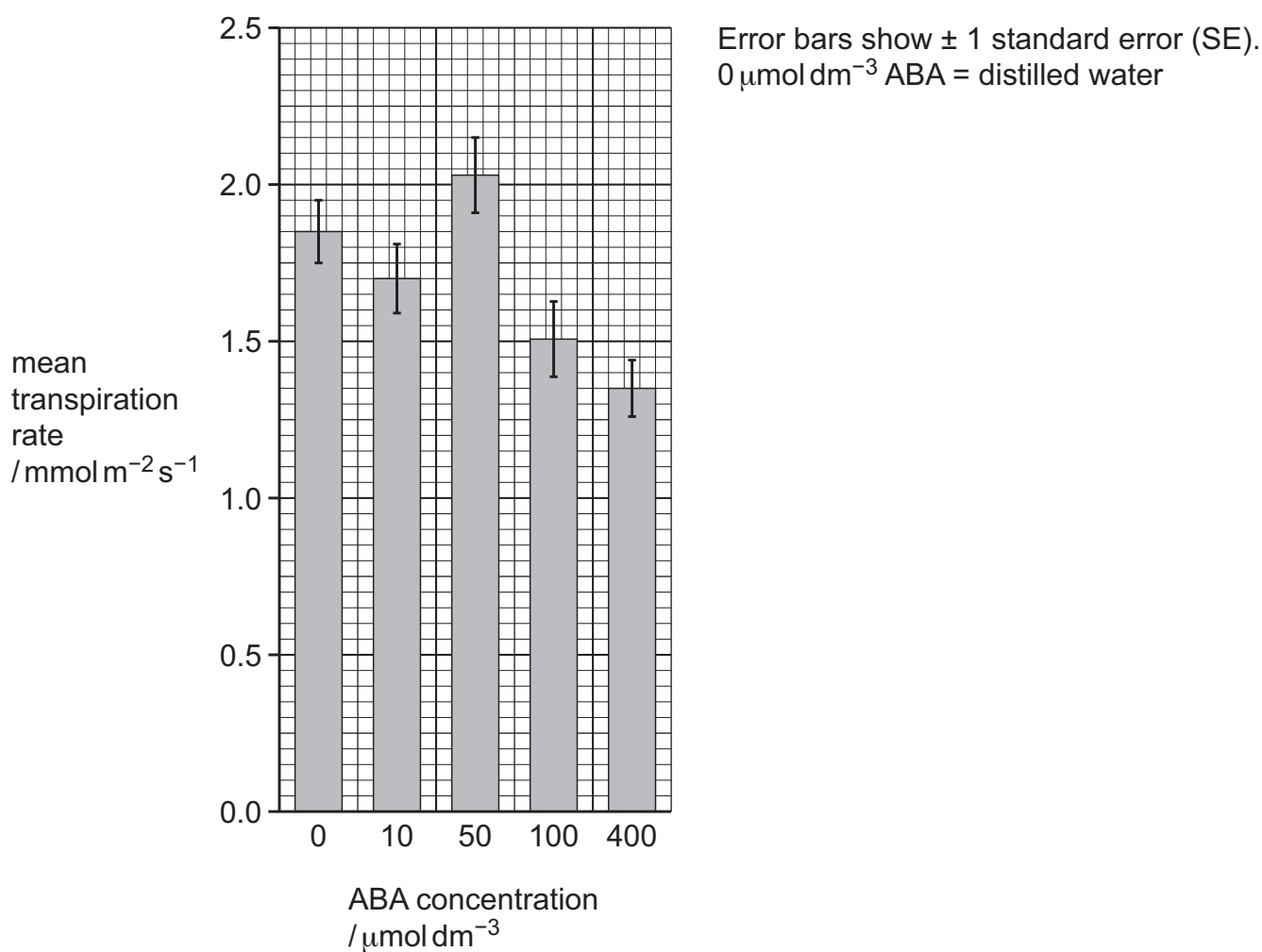


Fig. 2.1

(a) Calculate the percentage decrease in transpiration rate from 0 to $400 \mu\text{mol dm}^{-3}$ of ABA for the mutant variety.

Show your working.

percentage decrease = [2]

(b) With reference to Fig. 2.1, suggest conclusions that can be made about the effect of different concentrations of ABA on the transpiration rates of the mutant variety.

State the evidence that supports your conclusions.

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 [2]

(c) The scientists used a mutant variety of thale cress that has stomata that do **not** respond to ABA.

The scientists concluded that ABA reduces water loss in thale cress by ways other than stomatal closure.

Suggest additional information that is required to increase the confidence in this conclusion.

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 [3]