

Seed respiration measurements with the CIRAS-3 using the Insect Respiration Chamber



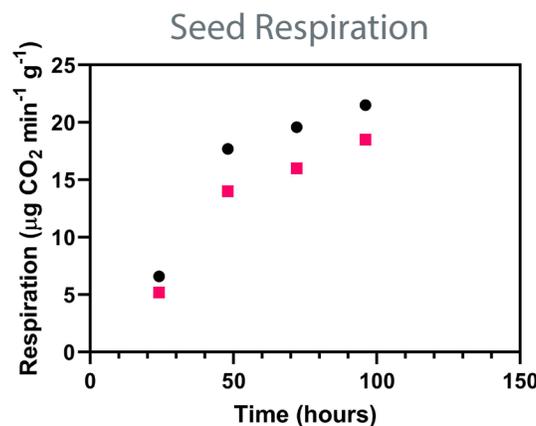
The rate of respiration of germinating seeds is easily measured using the Insect Respiration Chamber with the CIRAS-3 Portable Photosynthesis System.

While the net rate of release of CO₂ in darkness of dormant seeds is negligible, for beans, corn, sunflower and others, it becomes easily measurable within 24 hours (at 20 °C) of placing them on wet filter paper, and remains high for at least a few days (see figure).



In this example, the measurements made at 24 hours were performed using 5 seeds per species in the chamber at the same time, and a flow rate of 150 cc min⁻¹ at 400 ppm CO₂, which produced CO₂ differentials of about 15 to 20 ppm.

Later measurements were made using 2 or 3 seeds per species.



● bean
■ corn

Please Note: It is important to carefully remove external water from the seeds before measurement with a tissue so that no liquid water is inside the chamber, which could absorb or release CO₂. Additionally, seed respiration varies with CO₂ concentration, which needs to be specified and controlled.



If you would like to learn more about this application or speak with one of our experienced technical staff, please feel free to get in direct contact with us via any of the contact information listed below:

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