

Rule reveals CO₂ emissions of plant life

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Minnesota researchers have found a universal rule regulating plant metabolism that may also offer a key to calculating plants' carbon dioxide emissions.

Peter Reich, a professor of forest resources at the University of Minnesota, said scientists need to know precisely how much carbon dioxide plants release before they can construct models of global carbon dioxide cycling.

Reich and colleagues say they've determined plant emissions can be deduced from their nitrogen content. The study also reveals the respiration, or metabolic, rates of plants and animals follow different laws of scaling with respect to body size.

The researchers found the larger an animal, the slower its metabolism on a per-weight basis. In contrast, when Reich and his colleagues studied 500 plants from 43 species, they found that within a wide range of plant sizes, a quadrupling of weight leads to a quadrupling of respiration rates.

The important variable was nitrogen content: The more nitrogen in a plant, the more it respired and the more carbon dioxide the plant emitted.

The research is detailed in the Jan. 26 issue of the journal *Nature*.

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