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## **Thema**

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Freie Themen

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## **Titel**

Soil cation exchange capacity: main factor of shell carbonate diagenesis

## **Abstract**

Shell carbonate diagenesis occurs in interaction with soil solution, where the concentration of  $\text{Ca}^{2+}$  is in equilibrium with exchangeable  $\text{Ca}^{2+}$  and weathering of Ca-bearing minerals. While the exchange process takes place within seconds, the dissolution equilibrium with Ca-bearing minerals achieves after months. We hypothesized that shell carbonate diagenesis proceeds slower in soils with high cation exchange capacity (CEC) than those with low CEC. The goal of this study was to determine the effects of soil CEC and exchangeable cations on shell carbonate diagenesis. Shells of *Protothaca staminea* were mixed in glass bottles with 1) carbonate-free sand ( $\text{CEC} = 0.37 \text{ cmol}^+\text{kg}^{-1}$ ) (S), 2) a native loamy soil ( $\text{CEC} = 16 \text{ cmol}^+\text{kg}^{-1}$ )