

عنوان مقاله:

Distribution of phosphorus and the effect of physicochemical properties and clay minerals on phosphorus release in some calcareous soils

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خلاصه مقاله:

Phosphorus (P) is a nutrient essential for plant, which its availability in soils changes with aging process, leaching, precipitation processes, and the landform change. There is limited information available on kinetics release of P in calcareous soils. Therefore, the purpose of this study was to investigate distribution of P and the effect of physicochemical properties and clay minerals on its release in some dominant orders of the calcareous soils in Kohgiluyeh-and-Boyer-Ahmad province, using the 0.01 M calcium chloride () extractant. The results showed that the P released rapidly from the soil and continued slowly. After 72 h, the amount of P released in the studied soils ranged between 3.2 and 25.4 mg kg⁻¹. Evaluation of the fitted different equations on P released in the studied soils revealed that the Simple Elovich and power function equations could well predict the P release process in the studied soils. The results of the correlation between soil properties and released P contents showed that P release coefficients (including the slope and intercept in the Simple Elovich equation) have a significant negative relationship with the amount of smectite and vermiculite minerals. Also, the release coefficient of the parabolic diffusion equation had a significant negative relationship with pH and the amount of illite and palygorskite minerals.

کلمات کلیدی:

Calcareous soils, Clay minerals, Phosphorus release

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