

4<sup>th</sup> International Conference on **Pollution Control & Sustainable Environment**  
&  
6<sup>th</sup> Edition of International Conference on **Water Pollution & Sewage Management**  
July 26-27, 2018 Rome, Italy

**Effect of organic amendments on phosphorus sorption isotherm in some calcareous fertilized soils**

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In order to enhance crop production in arid and semi-arid regions, high amount of phosphorous (P) fertilizer and organic amendments (OAs) together are added to soils. Addition of OAs to P fertilized soil may alter P sorption and availability in soil. The high P concentration in soil solution can increase movement of P from soils to surface water increasing eutrophication of water. In order to study the effect of OAs with different ranges of total P and C/P ratios, Phosphorus sorption isotherm was investigated in five P fertilized calcareous soils treated with four types of OAs (vermicompost, grape waste, poultry and sheep manure) at rate of 20 g kg<sup>-1</sup> for one month. Isotherm experiment in control (not treated) and treated soils were carried out by concentrations of P range from 0 to 200 mg l<sup>-1</sup> in the presence of 10 mm CaCl<sub>2</sub>. Sorption isotherms were characterized using Freundlich, linear and Langmuir equations. The grape waste had the highest (350) and vermicompost the lowest (15) C:P ratio. Average concentration of available P in control and treated soil with vermicompost, grape waste, poultry and sheep manure was 25.9, 628.4, 495.0, 553.3 and 577.1 mg kg<sup>-1</sup>, respectively. Phosphorus sorption curves were well fitted to the Freundlich equation. K<sub>f</sub> and an average values were in the following order: control > grape waste > poultry manure > vermicompost > sheep manure. The SPR (standard P requirement) average of control and treated soil with vermicompost, grape waste, poultry and sheep manure was, 121.3, 11.0, 14.5, 12.8 and 9.3 mg kg<sup>-1</sup>, respectively. There was positive correlation between SPR with CEC and ECC percent of treated soils. Our study indicated that OAs with low C:P ratio and high total P had an important role in the sorption of P in calcareous soils.

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