Water shale (WS) spraying effect on phenolic compounds, anthocyanin content and antioxidant capacity of Camarosa and Camino Real strawberry cultivars.

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Water shale (WS) is a byproduct from industrial shale and can be used as fertilizers on strawberry production field. Strawberry is a functional food that beyond basic nutritional functions produces beneficial health effects. This effect is probably due to the presence of a variety of antioxidant compounds. The objective of this study was to evaluate the levels of anthocyanins, phenolic compounds and antioxidant capacity of Camarosa and Camino Real strawberry cultivars submitted to foliar fertilization with water shale. The treatments were T1-control (without foliar spraying); T2-distilled water+10%Ca+2%B; T3-12 liters/hectare WS+10%Ca+2%B; T4-24 liters/hectare WS+10%Ca+2%B. The experiment was designed in randomized blocks with four replications, each plot contained twelve plants. The fruits were harvested and stored at -20°C until analysis. The total phenolic compounds were determined using Folin-Ciocalteau reagent and antioxidant activity using the stable radical DPPH. To determine total anthocyanins acidified ethanol was used. Regarding to the total phenolic compounds in the Camarosa cultivar the control and the highest dose of WS (24 liters/hectare) showed the highest levels (440.42 and 464.41 mg of acid chlorogenic equivalent/100g fresh weight, respectively). The same patter was observed for anthocyanins in Camino Real cultivar. However, for antioxidant activity no significant interaction between cultivar and dose was observed, but differences between the isolated factors. The control showed the highest antioxidant activity (3,763.42 µg trolox equivalent/g fresh weight) indicating that plants with WS+Ca+B were in best conditions and produced less secondary metabolites to protect themselves. In conclusion, WS+Ca+B interfere with biosynthesis of secondary metabolites in strawberry.