

the study will help educators observe the value of integrating service learning teaching and learning strategies into the curriculum.

Oral Session 22:

Jefferson C

**Horticultural Crops Culture and
Management: Plant Nutrition 2**

Tuesday, 28 July 2009, 8:00–9:30 am

**Moderator: Dharmalingam Pitchay, dharma.
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8:00–8:15 am

**Vermicompost Extracts Influence Growth,
Total Carotenoids, Phenolics and Antioxidant
Activity in Pak Choi (*Brassica rapa* cv. Bonsai,
Chinensis group) Grown Under Vermicompost
and Chemical Fertilizer**

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Multiple studies have reported on the effect of compost tea on suppression of certain plant diseases. However, relatively little work has been done to investigate the effect of compost teas on yield and nutritional quality of vegetable crops and even fewer studies have addressed the relationship between extraction methods, chemical and biological characteristic of tea and subsequent plant response. Two greenhouse experiments were conducted to determine the effects of extraction methods on compost tea quality and the independent effects and interaction between compost tea type and fertilizer regime on plant growth, mineral nutrient concentration, phytonutrient content and antioxidant activity. Aqueous extracts of chicken manure-based vermicompost employing three different extraction methods were applied to pak choi plants under organic (vermicompost) and synthetic (Osmocote) fertilization. They were: non-aerated compost tea (NCT); aerated compost tea (ACT); aerated compost tea augmented with microbial enhancer (ACTME). Aerated water served as a control. Dissolved oxygen was lower and pH and mineral nutrients were higher in ACTME compared with the other teas, but total microbial population and activity in compost tea did not differ with extraction method. All compost teas similarly enhanced plant production, mineral nutrient content and total carotenoids in plant tissue, and this effect was most prominent under organic fertilization. Antioxidant activity and total phenolics were higher in plant tissues under organic compared to synthetic fertilization. Compost teas generally decreased phenolics under organic fertilization, and increased them under synthetic fertilization. Overall, the compost tea effect on crop attributes was attributed largely to a nutrient effect. The lack of significant differences among extraction methods on plant growth and nutrient concentration within fertilizer regimes suggests that aeration and additives were not necessary for growth promotion and nutrient quality under the conditions reported here.

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