PLANT-BASED REMEDIATION OF PESTICIDE-CONTAMI-NATED SOIL AND WATER

¹<u>R. Karthikeyan</u>, ²L.C. Davis, ³P.A. Kulakow, ¹S.L. Hutchinson, ⁴L.E. Erickson, ⁵K. Al-Khatib, ⁵A.A. Nurzhanova, and ⁶G. Turner

¹Department of Biological and Agricultural Engineering, Seaton Hall, Kansas State University, Manhattan, KS 66506; Phone: (785)532-5580; Fax: (785)532-5825.

²Department of Biochemistry, Chemistry-Biochemistry Hall, Kansas State University,

Manhattan, KS 66506; Phone: (785)532-6124; Fax: (785)532-6121.

³Department of Agronomy, Throckmorton Hall, Kansas State University, Manhattan, KS 66506; Phone: (785)532-7239; Fax: (785)532-6094.

⁴Department of Chemical Engineering, Durland Hall, Kansas State University, Manhattan, KS 66506; Phone: (785)532-4313; Fax: (785)532-7372.

⁵Institute of Plant Physiology, Genetics and Bioengineering, 45 Timiryazev Street, Almaty, Kazakstan, 480090; Phone: 8-3272-476659; Fax: 7-3272-476106.

⁶US EPA, 1235 Jefferson Davis Highway, 13th Floor, Arlington, VA 22202; Phone: (703)603-9902.

ABSTRACT

This review paper will address the non-target effects of pesticides on soil microorganisms and plants, pesticide physiology and toxicology, and fate and transport of pesticides in surface waters, ground-water, and soil; to suggest clean-up strategies for pesticide contaminated environments using microorganisms and plants. This paper will review the plant-based treatment systems that are now in use to treat pesticide contaminated environments and suggest additional plant-based treatment systems.

Key words: insecticides, herbicides, phytoremediation

