JD Swanson, PhD
Assistant Professor of Biology
University of Central Arkansas
Phone: 501 450-5472
Email: jswanson@uca.edu
http://faculty.uca.edu/jswanson/

Academic interests: Plant evolutionary development and molecular systems biology
Research Focus & Techniques of Expertise: The terms thorns, prickles, and spines, often used synonymously, actually refer to very different structures in terms of both plant development and morphology. While thorns and spines are derived from secondary branch or leaf meristems and contain vasculature, prickles are simply outgrowths of epidermal, and sometimes cortical tissues. Thus, because of their structural simplicity, prickle development provides an ideal system to study how cells communicate to control growth, proliferation, and morphological differentiation of an anatomical structure – a fundamental aspect of all developmental pathways. To study this organ we have selected blackberries and raspberries, which have both prickled and prickleless varieties. Initial studies suggest that prickles either develop directly from glandular trichomes (raspberry) or these trichomes may provide a signal (potentially phenolics) that allows proliferation of the underlying cortical cells (blackberry). To gain insight into the molecular control of these processes, we have created subtractive cDNA libraries from prickle-prickleless varieties of blackberry and raspberry. Additionally, we are currently analyzing gene candidates and characterizing their functional role in prickle development with which we hope to increase our understanding of the role trichomes may play in prickle development. This research has extended into several collaborations in the wider community and has lead to collaborations with Dr. Kim Lewers (USDA), Dr. Bob Skirvin (U Illinois), Dr. Kevin Folta (U Florida), and Dr. John Clark (U Arkansas).

Recent Selected Grants

Swanson, J-D. PI. Analysis and investigation of trichome genes and their potential role in prickle development of *Rubus* spp. USDA/CREES/AREA/Seed Grant, Sept 2008-Sept 2010.

Swanson, J-D. PI. Metabolomics of *Rubus* Trichomes: Exploration of potential signals involved with cell to cell signaling. Arkansas INBRE. May 2008-Sept 2008

Swanson, J-D. PI. Bioinformatic analysis of cDNAs potentially involved in thorn development: Exploration of thorn development as a model for the control of cancer tumors. Arkansas INBRE. May 2007-Sept 2007.

Swanson, J-D. PI, Gates, N. (Undergraduate Reasercer) Initial Studies into the Development of a Transgenic Protocol for Blackberry. The North American Bramble Growers Association, May 2008-Sept 2008.

(P3-206) Photoregulation of Phenylpropanoid Antioxidant Production in Tomato
PI: Stephen Grace (UALR); **Co-PIs:** Mariya Khodakovskaya (UALR), and JD Swanson (UCA)

(P3-211) Pave the Way for Deciphering the Development of Transfer Cells in Economically Important Crop Plants
PI: Hong Li Wang (UALR); **Co-PI:** JD Swanson (UCA)