2008 USDA-CSREES National Water Conference
Sparks, NV

Screening for pharmaceuticals in surface water, ground water, and sediment in Gallatin Valley, Montana

Suzanna Carrithers, Holly Sessoms, Tammy Crone, James Bauder, and Alan English

Abstract Text:

Based on national and regional emphasis on the issue of pharmaceuticals in water resources, increased efforts have been placed on monitoring streams across the nation for these specific parameters. Based on an extensive literature review, sufficient data existed to support the need for further screening of pharmaceutical occurrence in Montana's water resources. Through funding from an NRCS Conservation Initiative Grant (CIG), Montana State University's Extension Water Quality Program and the Gallatin Local Water Quality District initiated the first screening for pharmaceutical presence in water resources and sediment in the Gallatin Valley, Montana. Fourteen streams were sampled for both water and sediment analysis. In addition a nearby ground water well was sampled for each site. Sampling locations were selected in areas where potential impacts from both veterinary and human pharmaceuticals could be present. This project enhanced the knowledge base regarding pharmaceutical occurrence in Montana's surface waters, ground waters, and sediments and resulted in the development of innovative and widely available sample collection protocols. In addition a rigorous and validated solid phase extraction, ultra performance LC/MS/MS analytical method was developed to analyze surface and ground water samples.

Impact Statement:

Both traditional agricultural activity and increased population trends in the Gallatin Valley, Montana increase the need for screening of pharmaceutical occurrence in water resources. Continuation of the project will include interpretation of likely sources and environmental significance of pharmaceuticals detected through the screening process and development of guidelines for reducing pharmaceutical contamination of surface and ground water (contingent on detection of pharmaceuticals through the screening process).