



## Vacuum Based Adsorption of Contaminants: VacBAC

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**Inventor Information**  
Lawrence Goodridge

Many agricultural and food processing applications require the monitoring of substantial volumes of water. The low concentration of microbes requires large sample volumes (of the order between 10 and 100 liters) need to be processed for detection of such biologic contaminants.

These large sample volumes preclude the shipping of samples to central laboratories. There is a need for a field portable device to sample large volumes of water and concentrate microorganisms rapidly, easily, and a manner that enables reliable detection.

The vacuum line of a common wet vacuum has been modified to contain an inline cartridge filter (to remove sediment) discharging the water to the contaminant filter. The contaminant filter is packed with anion exchange resin beads. Negatively charged microbes are adsorbed onto the beads of the Amberlite® IRA-900 resin. Large quantities of water can be passed through the contaminant filter for purposes of increasing the concentration of biologic analytes in the bead mass. Using lateral flow device technology the concentrated biologic analyte-bead sample can be quickly evaluated.

### **Features and Benefits**

- Commercially available components
- Concentrates biologic analytes with anion resin beads
- Does not require elution of the sample from the beads to prior detection testing
- Uses well characterized lateral flow device technology for detection
- Able to analyze a volume of water 50 times larger than current competitor

### **Contact Information:**

*Rodman Tompkins*  
Phone: 970.491.8316  
Email: [rod@microrx.org](mailto:rod@microrx.org)  
[www.MicroRx.org](http://www.MicroRx.org)