

# Enzyme Purification Using the Econo-Pac® Q Cartridge

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## Summary

Dr. Ivan Kaiser's research involves the isolation and purification of proteins from snake venom, such as post-synaptic neurotoxins and hemorrhagic factors. In addition to research, Dr. Kaiser teaches a course on protein purification, in which students study the principles of protein purification using snake venom as a model. Students use various separation techniques, such as ion exchange and gel filtration chromatography, and polyacrylamide gel electrophoresis.

Shown below are typical data from university classroom experiments. Two ion exchange columns are examined: an Econo-Pac Q cartridge and a hand-packed DEAE Sephadex® column. As shown below, the Econo-Pac Q cartridge resolves peaks more efficiently than the user-packed column. (Note: The two gradient profiles are slightly different.)

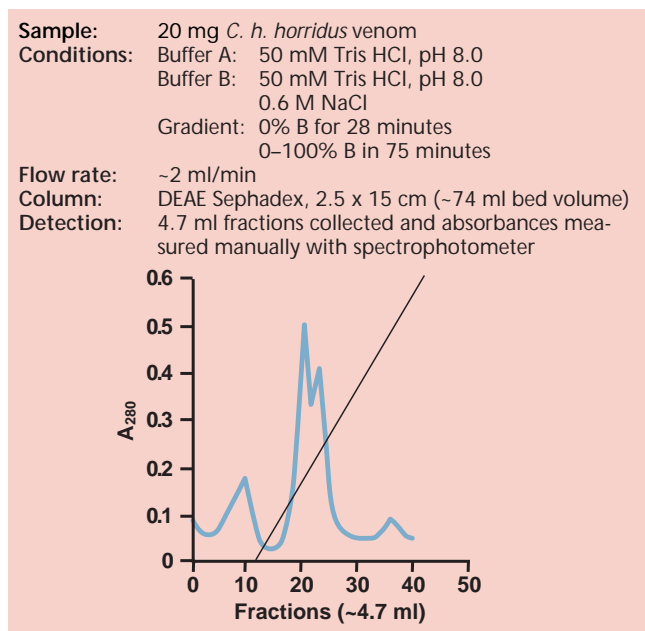


Fig. 1. Ion exchange purification of snake venom using hand-packed DEAE Sephadex column.

## Supporting Data and Procedure

Figure 1 shows the fractionation of *Crotalus horridus horridus* venom using a 2.5 x 15 cm DEAE Sephadex column. Crude, dried venom is dissolved in 50 mM Tris, pH 8.0, then filtered through a 0.45 µm filter. Twenty milligrams are loaded onto a column, and the gradient is initiated. Fractions of 4.7 ml were manually collected, and the absorbance of each fraction was measured at 280 nm.

Figure 2 shows a similar separation using the 5 ml Econo-Pac Q cartridge on an FPLC® system. Two milligrams of prepared snake venom are loaded onto a cartridge, and the gradient is initiated.

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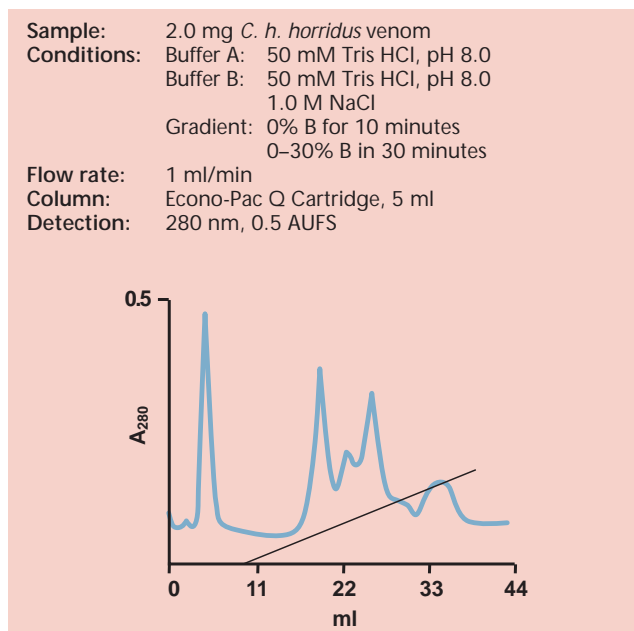


Fig. 2. Purification of snake venom using Econo-Pac Q cartridge.



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