Horowitz, N. H., and M. Fling. A method for concentrating dilute protein solutions.

We have found that dialysis against solid sucrose is an effective way to concentrate dilute solutions of tyrosinase encountered in the course of isolation of the enzyme. The dialysing tubing containing the solution to be concentrated is coiled up in a beaker (or a bucket, if large volumes are involved) and is covered with commercial sucrose. The liquid should be poured off as it accumulates outside the dialysing bag. Dialysis should not proceed for longer than 4 hours, since an excessive concentration of sucrose inside the bag will cause it to burst at the next step. The tubing is removed from the sugar at the end of this time, is tied off above the solution, and is placed in buffer or water to dialyse away the sugar. A 75 to 90% reduction of volume can be obtained in this way, depending on the initial salt concentration in the protein solution. If desired, the entire procedure can be repeated on the concentrate.

Ammonium sulfate can be used instead of sucrose, but we have obtained only a 30 to 50% reduction of volume with its use. In addition, it precipitates, as well as concentrates, the protein.

These methods are superior to the use of polyvinylpyrrolidone or polyethylene glycol (carbowax), in our experience. Both of the latter compounds pass through ordinary dialysing membrane in sufficient amounts to be serious contaminants, and once they get into a protein solution, they are very hard to get rid of. ---Biology Division, California Institute of Technology, Pasadena, California.