

### A method for the elution of paper chromatograms\*

There has been a need for a simple method for eluting substances from paper chromatograms, especially when there are a large number of samples to be handled. Many types of apparatus have been described which are either expensive or are time consuming. The following simple apparatus is offered for eluting chromatograms on a large scale with small volumes of many volatile and non-volatile solvents.

Fig. 1. shows the materials that are needed: (a) An eluter composed of 0.75 mm internal diameter thick walled capillary connected to 1 cm glass tubing of suitable length. (b) A suitable receiver; in this case, a 20 × 150 mm test tube is used. (c) A paper clip; a 90° bend is made in the paper clip approximately 5 mm from the

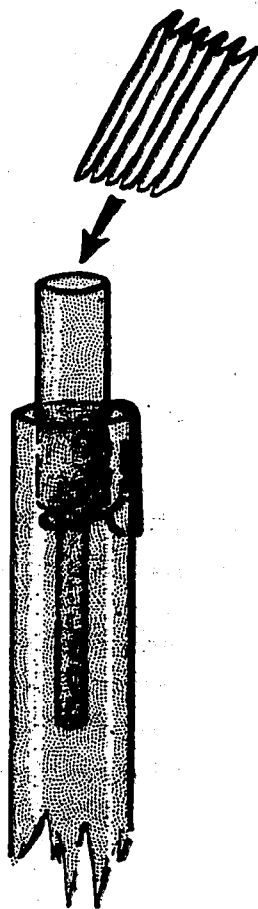


Fig. 1.

largest end clipped into the test tube as shown. The eluter is then set into the test tube through the seat provided by the paper clip. The paper to be eluted is then folded and placed into the eluter. Solvents are now added as desired. The draining time will depend on the size of the capillary and the type of solvent. Using an 0.75 mm capillary 5 cm long with 2 ml of ethanol, a draining time of 4 minutes is observed.

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10, 15, 20, 25, 30 and 50  $\mu\text{g}$  quantities of dehydroepiandrosterone in the following solvent systems, toluene-propylene glycol, heptane-propylene glycol, and heptane-phenyl cellosolve were spotted on Whatman No. 1 paper; eluting these papers with the above method using successive 2 ml volumes of ethyl alcohol and methyl alcohol to a total volume of 10 ml resulted in a recovery of  $94 \pm 3.5\%$ .

The main advantages of this method are: (1) The individual eluters are cheaply and quickly constructed. (2) The apparatus is easily handled and requires a minimum of attention. (3) Large numbers of samples may be eluted simultaneously; 100 samples can be processed easily. (4) A variety of solvents may be used in succession on the same sample to ensure recovery. The apparatus works equally well with  $\text{H}_2\text{O}$ , methanol, ethanol, chloroform, methylene chloride, ether, etc. (5) The apparatus is easily assembled, disassembled, and maintained.

This eluter was made to our specifications by Labtician Products Company, 190-04, 99th Avenue, Hollis 23, New York.

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### **Séparation de radioéléments par chromatographie sur papier imprégné d'un échangeur d'ion minéral**

La séparation de divers cations par chromatographie sur papiers imprégnés d'échangeurs d'ions minéraux a été signalée récemment par ALBERTI ET GRASSINI<sup>1,2</sup>, et CABRAL<sup>3</sup>. Ces auteurs précipitent sur le papier des composés minéraux dont les propriétés d'échange ionique ont été signalées par KRAUS<sup>4</sup> (phosphate et molybdate de zirconium) et SMIT<sup>5</sup> (phosphomolybdate d'ammonium).

Nous avons utilisé avec succès ces techniques en vue de séparer quelques radioéléments naturels et artificiels. La méthode est très souple par le choix du composé d'imprégnation, de la nature de l'éluant, de sa concentration. Nous avons fixé les conditions expérimentales conduisant à la séparation la plus rapide, en raison de la courte période de certains radioéléments étudiés.

Les papiers imprégnés de phosphate de zirconium (PZ) ont été préparés selon la technique décrite par ALBERTI<sup>1</sup>, les papiers chargés d'oxyde de zirconium hydraté (OZ) et de tungstate de zirconium (WZ) ont été préparés par des méthodes similaires: traitement du papier imprégné d'oxychlorure de zirconium par de l'ammoniaque ou du tungstate de sodium.

Les papiers lavés et séchés sont découpés en bandes (largeur 2 cm, longueur