

## A simple and inexpensive piece of apparatus for cascade superfusion procedures

I.L. NAYLOR

(introduced by G.D.H. LEACH)

*School of Studies in Pharmacology, University of Bradford, Bradford BD7 1DP*

A variety of experimental systems have been designed for the cascade superfusion of tissues for investigations of biologically active substances (Armitage & Vane, 1964; Finkleman, 1930; Vane, 1964; Willis, 1969). The cascade arrangement is useful as it enables the simultaneous study of a variety of tissues.

Previous procedures have either used individual tissue baths and have carried out the experiments at room temperature or placed the apparatus in an air heated cabinet. The resulting apparatus is bulky, the heating arrangement complex and relatively expensive. The system which will be demonstrated was developed as a simpler and cheaper alternative.

The advantage of the method is that all tissues are kept in one water jacketed tissue bath (see Figure 1, A) which is heated by a conventional circulatory water pump to give an internal air temperature of 37°C. This therefore eliminates the need for a thermostatically controlled cabinet and use of individual tissue baths. The tissues are mounted on an easily constructed perspex tissue holder (B) into which a set of 5 tissue platforms (C) are inserted. Providing the platforms are kept in a fixed sequence they may be placed at any selected distance apart by inserting them into the angled grooves (D) cut into the vertical piece of perspex. The angle of the grooves, 20°, was found to be suitable for all purposes. The platforms are made from pieces of non toxic, non wettable plastic obtained from the outer containers of plastic syringes (Sherwood Medical Industries Ltd) and cut into a suitable shape and size. Each platform has a built-in hook (E) which serves as a tissue anchorage point and this hook is arranged vertically under the notch of the preceding platform. This ensures that the cotton thread to the levers/transducers from the tissue is not obstructed and also gives a suitable route of flow for the superfusing fluid.

Superfusion is therefore possible without the fluid coming into contact with any glass surfaces thus preventing drug absorption. Collection of the superfusate for analysis is possible by inserting a suitable plastic device in the last platform (F). The platforms are not restricted to tissues as plastic cylinders can be

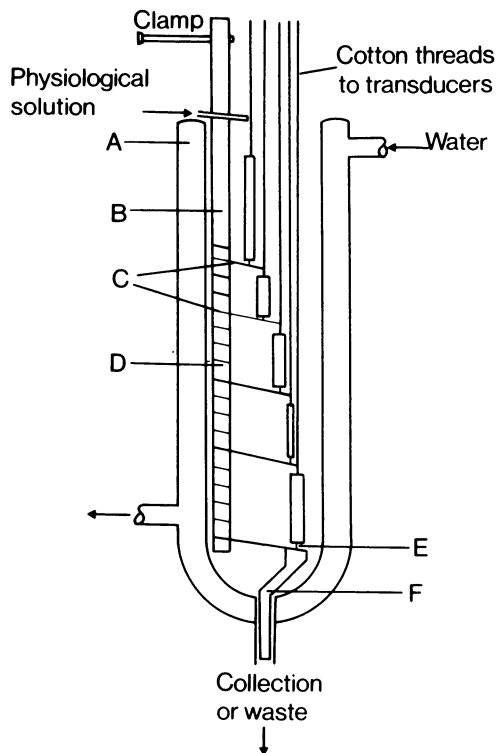


Figure 1

fabricated to take ion exchange resins for selective removal of active substances on their passage down the cascade.

The method is now in routine use in our laboratory and it has been found that the tissues used in the cascade remain pharmacologically sensitive and stable for several hours.

### References

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