

**Application of Biochemical Micromethods
for the Investigation of
Tropical Disease Pathogens**

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High-performance Micro-column Liquid Chromatography with Multi-wavelength Detection

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INTRODUCTION

High-performance liquid chromatography is a modern method for the rapid analysis of complicated mixtures in different areas of research and practice. This method became widely known about ten years ago under the name of "high-pressure liquid chromatography (HPLC)". Later it became obvious that high pressure is not always necessary to obtain high-quality rapid separation, and the method received the adjective "high-performance".

The difference between the HPLC method and traditional liquid chromatography is first of all its speed of the analysis. Traditional liquid chromatography needed typically some 10-20 hours for separation, whereas similar and higher quality separations by means of HPLC may take only a few minutes, and sometimes even seconds.

This increase of the speed has become possible due to the development of special instruments - high-performance liquid chromatographs - consisting of chromatographic columns filled by special fine-particulate adsorbents, high pressure, precisely controlled pumps, special detectors with flow cells, refractometers, photometers, conductometers, etc.

Due to the development of high-performance liquid chromatographs the method of liquid chromatography, which has been considered exclusively a research method, is now becoming a routine analytical technique in industry, medicine, environmental monitoring and other applied fields. It is predictable that the method of HPLC will soon occupy a place in the analysis of non-volatile compounds similar to that now held by gas-chromatography in the field of volatiles.

In tropical medicine the HPLC method may find applications as a technique for the investigation of metabolism in general, and in particular of the metabolism of drugs. An advantage of the HPLC technology is its review character - unlike other sensitive methods such as, for example, radioimmunoanalysis, HPLC gives information on the presence and the concentrations of many compounds in one single experiment.

The present report gives an outline of the development in the Siberian Division of the USSR Academy of Sciences of high-performance liquid chromatography and briefly describes a typical instrument produced in the Novosibirsk Institute of Organic Chemistry.