Details of CARE Facility

Name of CARE facility:	**CAMAG HPTLC System with AMD2**
Location:	**Environmental Engineering Laboratory, WL 116**
Total cost of equipment/facility:	**Rs. 35.22 lakhs**
Support provided by CARE:	**Rs. 28 Lakhs (balance from SIDA Projects)**
Year of CARE funding:	**2003-04, instrument arrived in July 2004, operational since September 2004.**
Name of Principal Investigator:	**Saumyen Guha, sguha@iitk.ac.in, 7917/8795**
Participating departments:	**CE, EEM (so far), a few enquiries from CHM and CHE**

Brief description and capability of CARE facility:

High Performance Thin Layer Chromatography is capable of separating organic compounds. Automated multiple development adds flexibility and enhance reproducibility and quantification. The user need to have knowledge of layers and solvents to be used for separation. In the absence of this knowledge, a method development step is necessary. The sensitivity of thin layer chromatography is less than gas or liquid chromatography. However, it is fast, standards and samples can be analyzed simultaneously on the same plate, versatile about the sample solvent and cheapest amongst all the chromatographic applications.

Technical Specifications:

Components available are: Linomat 5 for sample application, AMD2 for automated multiple development, twin trough tanks of different sizes for manual single solvent developments, HPTLC vario system for method development, TLC Scanner 3 for detection, TLC/HPTLC documentation system with digital camera, Reprostar TLC/HPTLC viewing box with UV system, TLC plate heater, TLC plate coater, dip tanks, dedicated computer with winCATS Planar Chromatography System Manager.

Utilization of the facility: (so far)

1) Analysis of pesticides, chlorinated and phospho compounds (1 Ph.D., 1 M.Tech Student)
2) Dyes (2 Ph.D. students)
3) Phytochelatins, plant peptides (1 M.Tech. student)
4) Fatty Acids (1 Ph.D. students)

Students so far, belonged to Saumyen Guha and Purnendu Bose.

Mechanism of time sharing:

A register is kept near the instrument which can be used for booking by the users when the load increases. So far, the students have mutually managed the times amongst themselves.

A set of analyses typically requires 3-5 hours in AMD and less in the tank. It is easy to teach any new user how to use Linomat for sample application and how to use the tank for development. Scanning of the plate is typically handled by my Ph.D. student. However, use of AMD2 requires specialized training. Development of methods in AMD requires knowledge of the compounds present as well as thin layer chromatographic principles. Just after installation, CAMAG sponsored 3 persons and I sponsored 2 persons from research project to go to their facility for initial training. The team consisted of 1 TA (permanent staff) from the laboratory and rest Ph.D. students. The TA has left IITK since and joined CPCB. My Ph.D. student now does analysis for any new user in AMD2 who will use it one time. So, a convenient time is mutually agreed amongst the new user (typically a student) and my student. For users, who will use the instrument continuously, my student run a training first. During the first few analyses, the new user is expected to run it only when a more experienced user is present. This has worked without any hurdle so far.

Charging Mechanisms:

No formal charging mechanism in place. It is hard to do since, it will depend on the type of analysis, type of sample etc. At present, all users are supposed to bring in their consumables.

Any difficulties, that you faced in running CARE facility:

None so far. Like all chromatographic instruments, it is consumable intensive. One spends approximately 2-3 lakhs on consumables and AMC per year for this instrument. I had not experienced any difficulties so far in meeting those expenses from my sponsored research projects.

Photograph of the facility:

From L to R (front row): Viewing Box, Reprostar, TLC Scanner, AMD2, Linomat 5, Computer with winCATS, plate heater. (Rear) Printer, Plate Coater