

# An overview of the Research Activities

It gives me an immense pleasure to present the activity report for the year 2004–05. The Malaria Research Centre has put intensive efforts to basic, applied and operational field research in different fields of malaria such as vector biology and control, vector parasite interactions, parasite biology, epidemiology, etc. Research activities carried out during the year provided useful inputs into the malaria control, understanding of biology of vectors and parasites and national programme.

Entomological activities included the study of bionomics and distribution, breeding habitat preference of *Anopheles culicifacies*, a principal rural malaria vector, development of PCR technique for the differentiation of all four members of the *An. fluviatilis* complex, evaluation of new formulations for mosquito control, screening of plant products for their adulticidal, larvicidal and repellent properties, role of serine protease and prophenol oxidase in *Plasmodium vivax* refractory strain of *An. culicifacies*, etc.

In order to understand the biology of human malaria parasites, genetic diversity studies, assessment of molecular markers, monitoring of resistance in *P. vivax* to sulphadoxine-pyrimethamine combination, purification and characterisation of *P. vivax* monoclonal antibodies, characterisation of GPL antigen from *P. falciparum*, comparison of immuno cytochemical peroxidase test (ICPT) and dot immunobinding assay (DIBA) for the detection of antimalarial antibody, purification and characterisation of haemoglobin degrading aspartic protease from *P. vivax*, etc. were undertaken during this year. Several plant extracts were screened for their antimalarial activity.

In order to ascertain the development of resistance in parasites to first and second line drugs, therapeutic efficacy studies on chloroquine, sulphadoxine-pyrimethamine were undertaken in Goa and

Rajasthan. Project malaria has gained an importance now a days and in order to understand the malaria situation in project areas a health impact assessment study was undertaken in SSP reservoir impoundment areas in Narmada valley in Madhya Pradesh. Longitudinal entomological and epidemiological studies were undertaken in hyper- and meso-endemic areas of Orissa for the development of a suitable site for malaria vaccine trial. Malaria clinics located at 22 Sham Nath Marg and 2 Nanak Enclave premises provided diagnostic and treatment services to more than 2400 patients during the year.

Centre celebrated Science Day, Environment Day, Antimalaria month and Hindi Week by conducting exhibitions, workshops, meetings and competitions. During this year the *Journal of Vector Borne Diseases* and *Malaria Patrika* in Hindi were brought out timely. A monograph on Malaria Parasite Bank describing the objectives, activities, achievements and isolates characterised and stored in the bank was published. A pictorial key for the identification of 58 Indian anophelines has also been published. Strenuous efforts were taken to publish the document "Protocols for uniform evaluation of insecticides for use in vector control". Four training courses and one workshop were organised for malaria community during the reporting period. Apart from these several students, technicians and other personnel were imparted training on different aspects of malaria and its control by scientists of the Centre. Nearly 42 papers were published in peer reviewed journals during the year 2004 by scientists and MRC scientists participated in several national, international conferences and workshops to present their research findings.

(PROF. A.P. DASH)  
Director