

Purdue University

Name of the Institution: Purdue University

Name of the Activity: “Partnering with higher education in India for improving nutritional quality of food by biotechnology approaches”

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Summary of activity. This collaborative project, funded by USAID-ALO, between Purdue University and University of Agricultural Sciences (UAS), Bangalore is focused on teaching, research, and outreach activities to enhance nutrient composition of vegetables and improve human health. The salient feature of education and outreach activity is the involvement of faculty, students, non-governmental organization (NGOs), and farmers, particularly women. Objectives are: 1) Enhance institutional capacity through the development of collaborative programs in biotechnology education and research training at UAS, Bangalore; 2) Develop an integrated research and educational training program to generate genetically modified plants for improving human health and nutrition in India.; 3) a) Increase the awareness of nutrition among the rural population, particularly women and children; b) Increase the awareness of farmers and policy makers about the potential of biotechnology in agriculture.

Accomplishments: Teaching: Development of teaching materials for a course in biotechnology and molecular biology. Thirty-hour lecture series highlighting different aspects of molecular biology, biotechnology, and its application to human health are being prepared. In addition a series of lectures introducing molecular biology and biotechnology to high school students are also being prepared. All the educational materials developed as a part this collaboration will be made available to other educational institutions. Some of them can be viewed at the website for the project

www.nutritionforall.org

Research: The research plan involves generation of transgenic tomato and eggplant with enhanced lycopene and Zn content. In addition, a large collection of tomato cultivars and genotypes are being grown for on a farmers’ field near Bangalore for evaluation of lycopene and micronutrient composition. The cultivars with high nutrient content will be promoted for cultivation in home gardens in the rural areas. These lines could also be used in traditional breeding programs. The research team has already completed surveys on farming practices, economics, health, and perception towards biotechnology in two selected villages. Six graduate students at UAS and two at Purdue are working on research and outreach activities.

Outreach: We have selected two villages in the Bangalore rural area for implementing educational and training activities. These activities are being coordinated between several women self-help groups, NGOs and state agencies. Educational materials on nutrition and human health are developed and used in outreach activities. Our intervention and rural training have significantly increased awareness of nutrition in human health and changed the perception about biotechnology in agriculture and health.

An international symposium on “Biotechnology approaches to alleviate nutrition and human health” has been scheduled for Jan. 9-11th in Bangalore as a part of this collaboration. The objective of this symposium is to bring leading researchers, private and public sector players to discuss issues relevant to biotechnology, human health, and nutrition. Highlights of the project activities and international conference can be viewed at the website www.nutritionalforall.org

Funding: USAID-ALO support: \$300,000; Purdue University Match: \$285,000

Many **private companies** such as Monsanto (India), Metahelix, Avestagen, etc. have made financial commitments to support the international symposium. They are also keen on participating in research and outreach activities.