

2007 University of Arkansas at Pine Bluff Combined Research and Extension Plan of Work

Herbs, Spices, and Medicinal Crops

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 202 40% Plant Genetic Resources
- 502 20% New and Improved Food Products
- 701 30% Nutrient Composition of Food
- 712 10% Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Nutrition-related health problems, especially hypertension, obesity, diabetes and arthritis are prevalent among disadvantaged rural and urban populations. Particularly minority elders in the Lower Mississippi Delta are vulnerable to these physiological diseases. Food consumption habits, dietary intakes, and meal preparation methods are believed to contribute to these problems. Many different plant products and produce are currently being used as nontraditional food items based on their perceived nutritional or medicinal qualities. Herbs and spices are used for adding taste, flavor and delicacy to foods. Some garnishing herbs such as sweet basal and cilantro are known for their medicinal values also. However, vegetables and fruits possessing higher functional food qualities are known to have major impacts on disease prevention and general health. Our past research on germplasm evaluation involving specialty herbs and vegetables and cooking and taste-testing of new food recipes using these vegetables generated interests in the stakeholders, plant scientists and nutritionists, as well as our collaborating partners in other universities. We plan to conduct in-depth studies on productivity and nutritional qualities of the selected herbs, spices, and vegetables as well as their potentials for providing new ingredients producing improved foods for better health.

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

The high impact of better food habits using food ingredients of high functional values are well recognized by the plant and food scientists. Nontraditional food sources will improve dietary intake and thereby will have a significant impact on disease prevention within the target population. Cooking methods and food processing may affect food values for these new food sources. Our preliminary knowledge of the levels of functional compounds in bitter melon, hot pepper, basal, and Ipomoea species are indicative of a great promise of new health food development. Motivational publicity and demonstration will popularize nontraditional foods, and consumers will adopt new herbs and vegetables in their diet. The existing resources are adequate to run the project; however, phytochemical analyses are costly and may need additional funds. Outside collaboration will be needed for the project and will greatly enhance the distribution of research findings.

2. Ultimate goal(s) of this Program

Provide healthy alternative food sources for better human health and nutrition for the target population through food intervention in the prevention of commonly occurred physiological diseases

V(F). Planned Program (Activity)

1. Activity for the Program

Planning meetings of the stakeholders and collaborating agencies will be conducted. Field experiments will be conducted on promising varieties/lines of specialty herbs, spices, and vegetables. Pure lines of green and white bitter melons will be developed through tissue culture and Micropropagation for chemical profiles of the two types. Phytochemical screening of hot pepper and leafy Ipomoea lines/varieties for bioactive and functional compounds will be conducted. Laboratory experiments will be conducted for recipe development and protection of processed foods against microbial contaminations. Taste testing and food intake studies with elderly minorities will be conducted followed by demonstration trials.