Preface

Living plants produce a great number of chemicals that are crucial for their function and development. Some of these chemicals are called primary metabolites and include proteins (aminoacids), carbohydrates, fats, nucleic acids, etc. But besides these primary chemicals plants produced so called secondary metabolites, which are specific for some taxonomic groups (families, genera). Their physiological function not long ago was questioned but recent research shows they are important constituents of plants, which were formed under the environmental pressure and play important function to protect plants against some environmental stresses. This group includes such classes of compounds as phenolics, carotenoids, alkaloids, saponins, glucosinolates, cyanogenic glycosides, terpenes etc. Each of these groups contains compounds with different biological activities, which in folk medicine and ethnofarmacology were used for centuries to cure or to protect diseases.

It was however just last two decade when interest in these compounds significantly increased due to their protective function against some civilization based human diseases that include cancer, coronary heart diseases. Epidemiological studies performed during last two decades clearly correlate frequency of some diseases with a diet, especially with the consumption of fruit, vegetables and whole grain containing food, which are rich sources of particular classes of phytochemicals. Similar studies on some different classes of natural compounds and their biological activities show their important function in nutrition. Best known include carotenoids, flavonols, phenolics and stilbenes as natural antioxidants, glucosinolates with anticancer activity, flavonols, isoflavones with estrogenic function, etc.

Plant natural products find also interest recently in animal nutrition. For long time some antibiotics have been used as growth promoting factor in animal production, especially in poultry and pigs. This, however, had some serious consequences in increasing resistance of some microorganisms dangerous for human health. Thus, some countries introduced new regulations prohibiting use of antibiotics in animal production. Also European Community starting from 2006 put ban on using antibiotics as growth promoters. This may effect in some income loses caused by new regulations. Natural products seem to be good natural alternative able to replace synthetic antibiotics in animal production. Natural plant remedy is being developed to play this function and classes of active natural principles are being identified.

All above aspects of secondary metabolism were discussed at the conference. Extended abstracts of this volume cover all the aspects presented by the participants.

The Organizing Committee