

MDA-MB-468), liver carcinoma (HepG2) and lung carcinoma (A549), with IC_{50} values of 10-70 μ M. A new 30-nortriterpenoid glycosides, named Bigelovii A, inhibited interleukin-6 inducible STAT3 and STAT5 activation in dose-dependent and time-dependent fashions. Treatment with the protein tyrosine phosphatase (PTP) inhibitor pervanadate reversed the Bigelovii A-induced down-regulation of STAT3, suggesting the critical role of both SHP-1 and SHP-2 in its possible mechanism of action. Bigelovii A also downregulated the expression of STAT3-regulated gene products that mediate apoptosis, cell proliferation, and invasion. These results suggested that the novel nortriterpenoid glycoside from *Salicornia bigelovii* may impart health benefits when consumed, and should be regarded as potential chemopreventative agents for cancer.

T6

P1344

Micropropagation as an alternative to the growth of *Dionaea muscipula*.

José Antonio Guzmán-Nava

Ecovoraz S. de R.L de C.V

In this study we develop a protocol was developed on for the micropropagation of *Dionaea muscipula*. *Dionea* is a monotypic genus of carnivorous plant in the family Droseraceae, *Dionaea muscipula*. The only species of *Dionaea muscipula*, of whose common name is *Dionea* flytrap or Venus flytrap, that catches live prey. Due to its popularity, the demand for these plants is increasing, however, growing large quantities of these plants is difficult. They are reputed to be difficult to grow. Thus, the cultivation of plant tissues by means of the micropropagation technique could be seen to be the way in which a larger number of individuals could be obtained in a shorter time and without having seeds. Ecovoraz has given itself to the task of growing these plants by means of being able to make a medium of culture, for the invitro growth of *Dionaea muscipula*, obtaining very favorable results. Plants from the market of Madre Selva Xochimilco city of Mexico at Mexico City were used. They are given a method of disinfection disinfected under greenhouse conditions with quaternary ANIBAC salts. Subsequently, the Murashige and Sook medium was used as the base for the concentration of micronutrients and macronutrients. Stock solutions were then used and were used at a concentration of 25%, 50%, 75% and 100%. The culture medium was supplemented with Indol 3 butyric acid 1.24 and 6-bencial aminopurina 1.5 mg. Our results indicate that forAs a result in which the for a salts concentration of 25%, we obtained on average concentration of salts at 25% averaged 18 shoots, the concentration of for 50% was obtained on average 32 shoots, while at nutrient concentration of 75% an average of 46 outbreaks were developed, and in at the 100% concentration an average of 26 shoots were obtained. This implies that, in order to obtain the greater. For which protocol to establish a greater number of outbreaks, we require is the concentration of 75% concentration of MS salts, adding plus 1.5 mg of 6-benzylaminopurine and 1.24 mg of indole-3-butyric acid.

T6

P1345

Leaf microscopic features of some local vegetables found in Nong Khai province, Thailand

Piriya Hassa, Paweena Traiperm

Department of Plant Science, Faculty of Science, Mahidol University

Local vegetables are plant grown for the consumption in local areas such as field, orchard or nearby house, which locals can easily harvest and reduce costs of production. Local people, especially the Northeastern Thai people, routinely consume various local vegetables for nutrition and health maintenance. In Nong Khai, a northeastern province of Thailand, people have received a number of food cultures from different races, including Thai, Laos and Vietnamese. Thus, Nong Khai province is suitable to study the local vegetables consumption. In forensic science, plant remains normally appear as evidence in a crime scene. For example, incompletely digested food in a stomach of dead bodies can be promising evidence to approximate time after the food had been eaten before death and to predict the locations where the food was prepared. For some cases, leaf fragments can facilitate the process of case conclusions by comparing the information with a testimony by a witness in that the specific origin of victims can be identified. However, the information about leaf anatomy of Thai local vegetables have been scarcely published because of the locally specific consumption of plants. Therefore, leaf epidermal peeling and leaf transverse sectioning methods were applied to examine leaf microscopic features of 17 species of local vegetable found in Nong Khai in order to find specific characters of each species for identification criteria. Stomatal pattern from leaf epidermal peeling on the adaxial surface consisted of anomocytic, tetracyclic, paracytic, and anisocytic types. While the abaxial surface exhibited anomocytic, actinocytic, diacytic, and cyclocytic patterns. Anticlinal cell walls vary from straight, straight to curve, and wavy. Three types of indumentum: unicellular trichomes, multicellular trichomes, and multicellular gland were found. The leaf transverse sectioning shows cuticle thickness, mesophyll layer, indumentum and vascular bundle characters. The important characters of each species were extracted and used to construct the key to species of 17 plants.

T6

P1346

Potato wild relatives (*Solanum* sect. *Petota*, Solanaceae) from Brazil: Filling the gaps of knowledge in herbaria and gene banks

Gustavo Heiden¹, Luís Henrique Dal Molin², Laísa Barcelos², Guilherme Klasen², Daiane Vahl², Caroline Castro¹

1. Embrapa Clima Temperado

2. Universidade Federal de Pelotas

The potato (*Solanum tuberosum*, Solanaceae) is one of the most important crops and one of the most complete foods, providing high quality protein, vitamins and minerals, as well as being a source of energy supplied by carbohydrates. Plant breeding has contributed positively to the Brazilian potato production, with the launching of varieties adapted to the different producing regions

of the country. However, the process of selection of more productive genotypes present as a setback the narrowing of the genetic basis of the cultivated species. In this context, it is essential that we dedicate sufficient efforts to the collection and conservation of germplasm of wild potato relatives with potential for use in crop breeding. To fill the gaps of knowledge and collections in herbaria and gene banks of genetic resources of wild potato relatives (*Solanum* sect. *Petota*, Solanaceae) for crop breeding, we are proceeding the taxonomic revision of wild species of potato from Brazil; mapping the geographical distribution of herbaria samples and gene banks; identifying the collection gaps in ex situ collections of germplasm; realizing fieldworks to fill the sampling gaps of germplasm and evaluating the morphological and agronomical characteristics of the accessions maintained in the Embrapa Clima Temperado gene bank of potato and its wild relatives. The main results are the taxonomical revision of herbaria collections and gene bank accessions, the morphological characterization of Embrapa wild potatoes genebank accessions using potato descriptors; the mapping of geographical distribution of wild potatoes herbaria and genebank samples and the identification of priority areas to collect germplasm, providing new material for breeding programs of the cultivated potato. A total of 655 occurrence data were collected for the native potato species in Brazil. The taxonomic revision of wild potato samples demonstrated that there are more than two taxa native to the country, a number higher than currently recognized. Through the morphological characterization of genebank accessions, we verified a great phenotypic variation in vegetative and reproductive traits, including tuber characteristics of agronomic value. Despite the occurrence of phenotypic diversity, it is necessary to increase variability through new collections, besides the application of other characterization methods to improve the use of conserved genetic resources. The mapping analysis revealed that there are areas located in four Brazilian states (RS, SC, PR, and MG) that are not yet sampled through the collection and introduction of new accessions in the gene bank, especially in the states of Santa Catarina and Paraná. Our results highlighted new priority areas for the collection of wild potato germplasm in order to increase the genetic variability in the gene bank of Embrapa Clima Temperado with the introduction of new accessions from Brazilian areas previously not sampled. The Embrapa genebank of potato and its wild relatives currently has 76 accessions of wild relatives from collections in the Southern and Southeastern regions of Brazil. This germplasm can be used as a source of resistance genes to biotic and abiotic stresses which are not found in the potato gene pool (CNPq).

T6

P1347

Conservation and public education about *Fissidens macaoensis*

Pou Ieng Hong¹, Li Zhang², Kun Fong Leong¹, So Mui Cecilia Cheung¹

1. Civic and Municipal Affairs Bureau (Instituto para os Assuntos Cívicos e Municipais), Macao SAR, China

2. Fairy Lake Botanical Garden, Shenzhen & Chinese Academy of Science, Shenzhen, China

Macao is located at the south-western tip of the Pearl River Delta

of China and has a total area of 30.5 square kilometers. Macao is a prosperous city which supports over 640,000 residents and attracts more than 30 millions of tourists every year. It is one of the cities that have highest population density around the world. Before 2006, we knew almost nothing about the biodiversity of bryophytes in Macao. In order to present the whole picture of Macao's plant diversity and also arouse the general public's concern on these small but valuable natural resources, the Civic and Municipal Affairs Bureau (Instituto para os Assuntos Cívicos e Municipais, IACM) of Macao SAR has collaborated with Fairy Lake Botanical Garden on bryophytes since October 2006. This collaboration has brought various fruitful results, including scientific research and science educations about bryophytes. In 2011, *Fissidens macaoensis* has been published as a new species for science. As the first species of bryophyte and the second species of plant named with "Macao", *F. macaoensis* is significant to Macao. Since *F. macaoensis* is very miniature and its populations are restricted in small and narrow area, we are now employing multiple measures for saving this species, including public education, setting up strict protection measure and propagation in lab via spore culture.

T6

P1348

Diversity and utilization of indigenous vegetables and edible plants in Bang Krachao, Samut Prakarn Province, Thailand

Tassanai Jaruwattanaphan, Pongson Wongsong

Department of Horticulture, Faculty of Agriculture, Kasetsart University

Fifteen villages in the Ehlanzeni District within three local municipalities were visited for the study. Thirty eight participants were identified on the basis of referrals, which included a traditional health practitioner (THP), herbalist, elderly people, middle age and youths. Ethnobotanical data was collected by means of interviews using semi-structured questionnaires. Data analyzed revealed that infants within the communities were treated with traditional medicine for ailments such as colic, nail biting, sunken and bulging fontanelles. *Hypoxis hemerocallidea* Fisch., C.A.Mey. & Ave-Lall, *Lippia javanica* (Burm.f.) Spreng. *Vachellia karroo* (Hayne) Banfi & Gallaso and *Annona senegalensis* Pers. subsp. *senegalensis* were amongst plants species which were frequently reported to be used medicinally. Decoction were mostly prepared from roots (79%) followed by bulbs (8%). In terms of administration of the medicines most of the plants were taken orally. The use of medicinal plant species in maternal healthcare has been perceived to be effective and reliable in preventing illness amongst communities within this district municipality. Validation for scientific efficacy will be needed as the search of new drug development continues.

T6

P1349

Bioactivity and chemical profiling of rhizome methanolic extract of *Amomum masticatorium* Thwaites (Zingiberaceae)

Sinitha K, Dr John E. Thoppil Thoppil

University of Calicut