peroxidation. This shows that the free radical scavenging/antioxidant activity of *T. asiatica* roots may be responsible for its therapeutic effect on tissue damage [V. Madhavan, Poonam Shah, Anita Murali*, S.N. Yoganarasimhan (Department of Pharmacology, MS Ramaiah College of Pharmacy, Bangalore 560054, Karnataka, India), *Asian Journal of Traditional Medicines*, 2010, 5 (5), 187-197].

**NPARR 1(4), 2010-0669, Effect of *Plantago major* on burn wound healing in rat**

To determine the effect of *Plantago major* on healing of burn wounds, 100 male Sprague-Dawley 180220 g rats were randomly divided into 4 groups. Groups of A, B and C each comprised of 30 rats, which were treated with silver sulfadiazine, 20% and 50% *Plantago major* solution. Group D comprised of 10 rats, which were considered as control group and were treated with Oserin. After 7, 14 and 21 d of treatment, the animals were sacrificed; burn areas were examined histopathologically and scored. There was no significant difference between groups on d 7 and 14 but the difference was significant on d 21. The best results were noticed in group C receiving 50% *P. major* solution. So *Plantago major* may be a suitable substitute for silver sulfadiazine especially when applied in 50% concentration. [Amini M., Kherad M, Mehrabani D, Azarpira N., Panjehshahin M.R, Tanideh N.(Gastroenterohepatology Research Center, Department of Pathology, Nemazee Hospita), *Journal of Applied Animal Research*, 2010, 37(1) 34].

**NPARR 1(4), 2010-0670, Effects of a grapeseed procyanidin extract (GSPE) on insulin resistance**

Flavonoids are beneficial compounds against risk factors for metabolic syndrome, but their effects and the mechanisms on glucose homeostasis modulation are not well defined. In the present study, we first checked the efficacy of grapeseed procyanidin extract (GSPE) for stimulating glucose uptake in insulin-resistant 3T3-L1 adipocytes. Results show that when resistance is induced with chronic insulin treatment, GSPE maintain a higher stimulating capacity than insulin. In contrast, when dexamethasone is used as the resistance-inducing agent, GSPE is less effective. Next we evaluated how effective different GSPE treatments are at improving glucose metabolism in hyperinsulinemic animals (fed a cafeteria diet). GSPE reduced plasma insulin levels. The lower dose (25 mg GSPE/kg body weight per day) administered for 30 days improved the HOMeostasis Model Assessment-insulin resistance index. This was accompanied by down-regulation of Pparg2, Glut4 and Irs1 in mesenteric white adipose tissue. Similarly, a chronic GSPE treatment of insulin-resistant 3T3-L1 adipocytes down-regulated the mRNA levels of those adipocyte markers, although cells were still able to respond to the acute stimulation of glucose uptake.

In summary, 25 mg/kg body weight per day of GSPE has a positive long-term effect on glucose homeostasis, and GSPE could be targeted at adipose tissue, where it might directly stimulate glucose uptake. This work also highlights the need to carefully consider the bioactive dose, since a higher dose does not necessarily correlate to a greater positive effect [Gemma Montagut, Cinta Bladé, Mayte Blay, Juan Fernández-Larrea, Gerard Pujadas, M. Josepa Salvadó, Lluís Arola, Montserrat Pinent and Anna Ardévol (Department of Biochemistry and Biotechnology, Rovira i Virgili University, Tarragona, 43007 Spain), *The Journal of Nutritional Biochemistry*, 2010, 21(10), 961-967].

**VEGETABLES**

**NPARR 1(4), 2010-0671, Preliminary assessment of nutritional value of polly dwarf (*Alocacia indica*): an Indian vegetable**

The proximate composition and mineral constituents of *Alocacia indica* Stem were evaluated. The stem contained ashes: 9.1%, crude protein: 5.44%, crude lipid: 3.25%, crude fiber: 22.9%, and carbohydrates: 59.31%. The stem also has high energy value (288.25kcal/100g) dry weight. Mineral ranges (mg/100g dry weight, DW) were: K (4.63), Na (1.62), Ca (7.37), Fe (5.04), and Zn (3.83). Comparing the tubers mineral contents with recommended dietary allowances (RDA), the results indicated that *Alocacia indica* stem could be a good supplement for some nutrients such as Fibre, Potassium, Zinc, lipid, and Carbohydrates. The wild stem could be promoted as a carbohydrate supplement for cereal-based diets in poor rural communities, while its high potassium content could be utilized for the management of hypertension and other cardiovascular conditions [Aberoumand Ali* and Deokule S.S. (Natural Resources College, Behbahan
Essential and non-essential element composition of tomato plants fertilized with poultry manure

Poultry manure (PM) must be disposed of from poultry farms, but is a potentially valuable source of macro- and micronutrients for plant growth. The objective of this study was to examine the effects of poultry manure on the growth of tomato (*Lycopersicon esculentum*) plants. Yields of fruits and vegetative material of plants grown in soil with 0, 10, 20 and 40 g kg\(^{-1}\) PM added were measured. Concentrations of N, P, K, Ca, Mg, S, Fe, Zn, Cu, Mn, Mo, Cl, Si, Br, Rb, Sr and Ba in leaves at flowering and at final harvest and in fruits were determined by polarized energy dispersive X-ray fluorescence (PEDXRF). Poultry manure fertilization improved tomato shoot growth and also fruit yield and increased leaf N concentrations at the harvest stage. In addition, P concentrations of the leaves and fruits were increased as the application rate of PM was increased. Fruit Ca and Mg were significantly reduced by increased rate of PM application, but not to the extent to cause the calcium deficiency disorder blossom end rot. Applied high levels of PM slightly increased the concentrations of leaf Mo and Br at the harvest stage. Poultry manure applications had a positive effect on the concentrations of leaf Zn, Cu, Cl and Rb at both sampling stages, but leaf Si concentration was reduced by PM treatments. The concentrations of Zn and Rb were increased in the fruits by PM treatments, but the concentrations of Br were decreased. Applied PM levels had no significant effects on the concentrations of K, S, Fe, Sr or Ba in tomato plants. It is concluded that the increased fruit yield, and the increased concentration of Zn (an element required in the human diet) and the lowered concentration of potentially harmful Br in the fruit make poultry manure a valuable growing medium for tomato production (Demir, O. Sahin, Y.K. Kadioglu, D.J. Pilbeam and A. Gunes* (Ankara University, Faculty of Agriculture, Department of Soil Science and Plant Nutrition, TR-06110 Ankara, Turkey), *Scientia Horticulturae*, 2010, 127(1), 16-22).

Antioxidants profile of small tomato fruits: Effect of irrigation and industrial process

Carotenoids and flavonoids are the main tomatoes antioxidants, having an important role for human health. This study investigates the effects of different water regime and of the industrial processing on the concentration of these compounds in tomato fruits and in tomato products. Two biotypes of Corbarini small tomatoes were cultivated in the Sarno valley (Salerno, Italy) using three different water regimes. A biochemical characterization of the fresh and of the corresponding canned products was performed. Results show that water regime influenced the antioxidant profile of tomato fruits, with marked differences between the two biotypes. Data obtained highlight that water regime markedly influenced the productivity and the quality of the tomatoes. Results also demonstrated that industrial process increased carotenoids content without causing a significant flavonoids degradation [Rita Pernice, Mario Parisi, Italo Giordano, Alfonso Pentangelo, Giulia Graziani, Monica Gallo, Vincenzo Fogliano and Alberto Ritieni*(Department of Food Science, University of Naples Federico II, Via Università 100, Parco Gussone, Portici 80055, Napoli Italy), *Scientia Horticulturae*, 2010, 126(2), 156-163].

Topochemical investigation into the delignification of *Eucalyptus globulus* chips during semi-chemical sulfite pulping

The course of delignification of *Eucalyptus globulus* fibers during neutral semi-chemical sulfite pulping (NSSC) was studied by universal microspectrophotometry (UMSP 80, ZEISS). UV-investigation into a cellular level enables the topochemical analyses of delignification within individual cell wall layers during cooking. Cooks were carried out in a laboratory seven liter digester with liquor circulation and electrical heating device. Chip samples were taken throughout the cooking for chemical and UV microscopic analyses. UV microscopy analysis revealed for *Eucalyptus globulus* chips a preferred lignin removal during NSSC