Highly accurate Cd determination is required in many environmental, biomedical, and health-related nutritional studies owing to the element toxicity to organisms even in trace concentrations. Analytical techniques capable of low level Cd determination usually involve sample decomposition which can be accomplished by various wet or dry ashing procedures. Recently, on analysis of NIST SRM-1573a Tomato Leaves by RNAA procedure in which the Cd chemical yield is determined using the ^{109}Cd radiotracer, we noted unusually low Cd yields on wet ashing. Therefore, we studied this problem in more detail for several wet and dry ashing procedures using tomato leaves with the metabolized ^{109}Cd radiotracer. Wet ashing procedures studied yielded solutions with some precipitates and/or residues except for mixtures containing HF. In the absence of HF and H_2SO_4, the residue was formed by a siliceous material which retained only small amounts of Cd (up to 5%). The most appreciable Cd losses occured when H_2SO_4 was used on wet ashing, because $CaSO_4$ precipitated which retained 30-40 % of the Cd present. Only small Cd losses (about 5%) were observed on dry ashing in air in an open system at temperature not exceeding 500^0C. However, the losses increased up to 30% when the final temperature was ralsed to 900^0C. Thus, for the accurate Cd determination in plants and other Cd-rich materials. the, the use of H_2SO_4 on wet ashing should be avoided if the Cd yield cannot be determined. On dry ashing, the final temperature should not exceed 500^0 to achieve the highest Cd yield, close to 100%.

94-20 APPLICATION OF THE NEUTRON ACTIVATION METHOD TO THE ANALYSIS OF MEDICINAL PLANT EXTRACTS. S.M.Vaz, M.Saiki, M.B.A.Vasconcellos and J.A.A.Sertié. IPEN-CNEN/SP, Radiochemistry Division, P.O.Box 11049, CEP 05422-970, São Paulo, SP, Brazil and Instituto de Ciências Biomédicas, University of São Paulo, P.O.Box 4365, São PAulo, SP, Brazil.

The use of medicinal plants is very popular in Brazil and consequently their study has attracted much attention in several field of research. The evaluation of trace elements in medicinal plants has been carried out in the present work in order to study the correlation between elements present and their active constituents as well as to detect their eventual toxicity. Extracts obtained from *Centella asiatica, Citrus aurantium L., Achyrolcline satureoides DC, Casearia sylvestris, Solano lycocarpum, Zingiber officinale Roscoe, Folidago microglossa* and *Stryphnondedron barbatiman* plants were analysed. Samples of dried extracts were irradiated in the IEA-R1 nuclear research reactor and the elements Cs and La at the level of μg/kg, Br, Ca, Cl, Fe, Mg, Mn, Na, Rb and Zn at the μg/g level and K at the percentage level were determined by INAA. Hg and Se were determined by using radiochemical separation (RNAA) by means of retention of Se in HMD inorganic exchanger and solvent extraction of Hg in bismuth diethyldithiocarbamate solution. Results presented a good precision for most elements, with relative standard deviations lower than 11%. In order to check the accuracy of INAA and RNAA methods biological reference materials were analysed. The influence of some elements in the therapeutic action of the plants is also discussed. (Work supported by the CNPq and FAPESP from Brazil)

94-21 DETERMINATION OF I-129 IN LOW LEVEL RADIOACTIVE WASTE BY RADIOCHEMICAL INSTRUMENTAL NEUTRON ACTIVATION ANALYSIS K. I. Burns and M. R. Ryan, General Chemistry Branch, Chalk River Laboratories, AECL Research, Chalk River, Ontario,Canada KOJ 1JO

The waste characterization and routing program (WC&RP) at Chalk River Laboratories (CRL) was initiated in 1982 to determine the physical, chemical and radiological properties of wastes intended for disposal in IRUS (Intrusion Resistant Underground Structure), a below ground vault to be constructed at CRL. One of the most restrictive radionuclides for IRUS is I-129, which has a maximum activity concentration of 10^6 Bq/m^3 in waste for the facility. The limit of detection for radionuclides in waste has been set at 1% of the maximum activity concentration or 10^4 Bq/m^3 for I-129. An analytical method has been developed to determine I-129 in two waste streams, incinerator ash and liquid feed to a bituminizer, based on radiochemical instrumental neutron activation analysis. Solid samples are spiked with I-125 tracer, fused at 900°C with LiB_4O_7 in a platinum boat in a flowing