2:30 PHYTOCHEMICAL INVESTIGATION OF *RUMEX HASTATULUS* AND *RUMEX ACETOSELLA*, *Bethany A. Lynn*, J. Richard Carter and James T. Baxter, Valdosta State University, Valdosta, GA 31698.* The steam volatile oil of two related species, *Rumex hastatulus* and *Rumex acetosella*, were analyzed using CG-MS. The patterns of total ion chromatograms of the two related species can be used in identification. In addition, several compounds in the steam volatile oils of both plants have been identified. *Rumex hastatulus* has been extracted using a National Institute of Health (NIH) extraction procedure. The extracts were analyzed using a CG-MS.

2:45 **Break**

3:00 THE PREPARATION, CHARACTERIZATION AND X-RAY STRUCTURAL ANALYSIS OF DICHLORO*BIS*[1-ETHYL-3-METHYL-2(3H)-IMIDAZOLETHIONE]BISMUTH(III), *Dustin R. Smith*, Jack W. Long, Donald VanDerveer and Daniel J. Williams, Department of Chemistry and Biochemistry, Kennesaw State University, Kennesaw, GA 30144 and School of Chemistry, Georgia Institute of Technology, Atlanta, GA 30332.* A new compound of bismuth (III) chloride complexed to 1-ethyl-3-methy-2(3*ah*)-imidazolethione (emit) has been prepared and characterized via standard methods and x-ray crystallography. The compound $BiCl_3(emit)_2$ crystallizes in space group *P/c* with a = 17.143(6) Å, b = 17.047(6) Å, c = 14.759(5) Å, β = 105.899(5)°, V = 4148(2) Å^3, Z = 8. The structure consists of two distorted octahedra sharing a common edge through chlorine atom bridging. The thione ligands are *trans* to each other and perpendicular to the chlorine-bismuth plane. The structure is similar to the *bis* complex of 1,3-dimethyl-2(3*H*)-imidazolethione (*dmit*) except that the six chlorine and two bismuth atoms are not coplanar, and the two octahedra are canted slightly toward each other. Bond distances and angles are comparable to those observed for $BiCl_3(dmit)_2$.

3:15 IMPACT OF SIZE ON THE MAGNETOCHEMISTRY OF Mn12, *Jerry Purcell*[1], Thomas Manning[1], Jim Nienow[2], Micah North[3], Naresh Dalal[3] and Kim Riddle[3], Chemistry Department, Valdosta State University[1], Valdosta, GA 31698, Biology Department, Valdosta State University[2], Valdosta, GA and Chemistry and Biology, Florida State University[3], Tallahassee, FL.* Mn12 ($[Mn_{12}(CH_3OO)_{16}(H_2O)_4O_{12}]_2CH_3COOH.4H_2O$) is a ferromagnetic molecular cluster with a total spin S = 10 that exhibits quantum tunneling of its magnetic moment at low temperatures. We use three novel approaches to make manocrystals of Mn12: 1. entrapment in the nanometer sized pores in the silicate shell of the marine organism diatom, 2. wrapping the clusters in the individual sheets of graphite made from exfoliated graphite, and 3. trapping the Mn12 inside single walled nanotubes. Using SQUID, we measure the blocking temperature and shift a from 2.95 K to 4.0 K. The hysteresis loop for the Mn12 cluster also shifts. These results will be presented and discussed in-depth.