P-033: ISOLATION AND CHARACTERIZATION OF BIOACTIVE POLYMERS FROM NORTH AMERICAN CRANBERRY (*VACCINIUM MACROCARPON*) FRUIT AND JUICE

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Extracts from whole cranberry fruit and organic cranberry juice were chromatographed on Sephadex LH-20 to separate proanthocyanidins (PACs, or polyflavan-3-ols) from smaller flavonoids and phenolics. The PAC fractions were analyzed by matrix assisted laser desorption-ionization time-of-flight mass spectrometry (MALDI-TOF MS) to determine the degree of polymerization and structural subunits. The whole fruit PAC fraction contained primarily polyflavan-3-ols with degree of polymerization from 3 to 7, and inhibited proliferation of HCT-116 and HT-29 colon, H460 lung and K562 leukemia cells at concentrations ranging from 15-50 μg/mL. The PAC fraction isolated from cranberry juice contained primarily anthocyanin-polyflavan-3-ol oligomers composed of one anthocyanin moiety with 1 to 4 catechin extending units. Systems using glass and diol-modified stationary phases with various elution gradients are being used to subfractionate PACs by degree of polymerization, to assist in identifying which subfractions retain the activity of the parent fraction. Western blotting will be used to determine effects on COX-1 and -2 protein expression in HT-29 and HCT-116 cell lines.