Aroma Profile of Nineteen Cultivars of Roasted Peanuts

R.A. CAMPBELL*, K. ADHIKARI, Y-C. HUNG, Department of Food Science & Technology, The University of Georgia, Griffin, GA 30223-1797; and L.L. DEAN, Food Science and Market Quality and Handling Research Unit, USDA, ARS, SEA, Raleigh, NC 27695-7624.

The aroma profile of 19 commercially available peanut cultivars was determined. There were 12 runner (10 high-oleic [HO] varieties), 5 virginia (2 HO varieties) and 2 spanish cultivars (both HO varieties). The aroma volatiles of the peanut samples roasted to medium roast levels were extracted using headspace solid-phase microextraction (HS-SPME) technique. A gas chromatograph coupled to a mass spectrometer (Model 7890A/5977A, Agilent Technologies, Santa Clara, CA) was used to separate and identify 14 volatile aroma compounds in the samples. A one-way analysis of variance with cultivar as the main factor revealed differences in aroma volatiles among the cultivars. The four runners – Georgia 13M (HO), TUFRunner™ '297' (HO), AU-NPL 17 (HO), and Georgia 06G (normal-oleic [NO]) had the most amounts of total aroma volatiles. Georgia 16HO (HO) and FloRun™ '331' (HO), both runners, and the two spanish cultivars (TamNut OL06 and OLé; HO) had intermediate amounts of total aroma volatiles. The five virginia cultivars, along with the rest of the runners (mostly HO) had low amounts of aroma volatiles. The principal components analysis (PCA) biplot also reiterated the findings above, where Georgia 13M (HO) and TUFRunner™ '297' (HO) were characterized by having the most volatiles. These were followed by AU-NPL 17 (HO), Georgia 06G (NO), and the two HO spanish cultivars (TamNut OL06 and OLé; HO). It can be inferred from this study that runner and spanish cultivars have higher contents of aroma volatiles than virginia cultivars. It would be interesting to determine the relationships of the aroma volatiles with sensory characteristics.