

Sampling Plan for a Study of Cranberry Dietary Supplements (DS) for the Dietary Supplement Ingredient Database (DSID)

Josiah Ekong,¹ Laura Oh,¹ Ermias Haile,¹ Karen Andrews,¹ Pavel Gusev,¹ Pamela Pehrsson,² Rahul Bahadur,¹ Johanna Dwyer,³ Adam Kuszak,³ Rebecca Costello,³ and Leila Saldanha³

¹Methods and Application of Food Composition Laboratory (MAFCL), USDA; ²Agriculture Research Services, USDA; and ³Office of Dietary Supplements, NIH

Objectives: The intake of cranberry juice or supplements has been found in several, but not all, clinical studies to reduce the recurrence of urinary tract infections (UTIs). Several studies indicate that cranberry proanthocyanidins (PACs) may have a role in UTI prevention due to their ability to inhibit bacterial adhesion. For cranberry DS products on the US market, the relationship between PAC content and the cranberry source (e.g., powder, juice, extract) used in formulations is largely unknown. Therefore, a sampling plan was developed to identify and purchase DS for PAC testing as part of the Dietary Supplement Ingredient Database project. This will include popular cranberry DS, those used in clinical trials, and products with a variety of label claims and source ingredients.

Methods: DS usage data from the National Health and Nutrition Examination Survey and retail sales data were used to identify the most popular cranberry DS in the natural health (NH), mass

market (MM), and direct distribution sales channels. Other sources of information were the Dietary Supplement Label Database and web-based DS sellers. Three DS label categories were identified: those with a trademarked cranberry ingredient, those without a trademarked cranberry ingredient, and those with a numeric PAC claim. Some products may fall into two categories. Most products chosen for the study had cranberry as the primary ingredient by weight. Popular products with D-mannose and vitamin C were also included.

Results: In the first phase of this study, we purchased 41 DSs (18 MM, 11 NH, and 12 direct). Our sample included caplets, capsules, soft gels, tablets, and liquid DSs. Cranberry source materials for the DSs included extracts, concentrates, powder, juice, and whole fruit. Fifteen (15) supplements had trademarked cranberry ingredients and 9 had a specific voluntary claim for PAC content.

Conclusions: In 2020, cranberries were the 6th ranked herbal ingredient sold in the US, according to the Nutrition Business Journal. The range of PAC content in the diverse cranberry DSs on the market is currently not known, since there is no requirement for this information on labels. This study will answer questions about the PAC content in a variety of DSs and whether multiple laboratories testing using the dimethylaminocinnamaldehyde (DMAC) method will yield similar results.

Funding Sources: NIH ODS and the USDA.