

2
3 **Method Name:** Identification of Type-A Proanthocyanidins in Cranberry -Based Foods
4 and Dietary Supplements

5
6 **Intended Use:** Consensus-based reference method.
7

8 **1. Purpose:** AOAC SMPRs describe the minimum recommended performance characteristics
9 to be used during the evaluation of a method. The evaluation may be an on-site
10 verification, a single-laboratory validation, or a multi-site collaborative study. SMPRs are
11 written and adopted by AOAC Stakeholder Panels composed of representatives from the
12 industry, regulatory organizations, contract laboratories, test kit manufacturers, and
13 academic institutions. AOAC SMPRs are used by AOAC Expert Review Panels in their
14 evaluation of validation study data for method being considered for *Performance Tested*
15 *Methods* or AOAC *Official Methods of Analysis*, and can be used as acceptance criteria for
16 verification at user laboratories.
17

18 **2. Applicability:**

19 The method will be able to identify the presence of Type-A proanthocyanidin in cranberry
20 (*Vaccinium macrocarpon*) fruit, juice, beverage, dried cranberry fruit, cranberry sauce,
21 ingredients (concentrates, extracts, powders, and presscake); or dietary supplements (listed
22 in table 2).
23

24 **3. Analytical Technique:**

25 Any analytical technique that detects the analytes of interest and meets the method
26 performance requirements is acceptable.
27

28 **4. Definitions:**

29
30 **Dietary supplements**

31 A product intended for ingestion that contains a "dietary ingredient" intended to add
32 further nutritional value to (supplement) the diet. Dietary supplements may be found in
33 many forms such as tablets, capsules, softgels, gelcaps, liquids, or powders.
34

35 **Identification**

36 Identification is the characterization of the substance being analyzed, including its chemical,
37 mineral, or biological classification, as applicable. In many investigations the identity of the
38 analyte is assumed and the correctness of the assumption is merely confirmed.

39 **5. Method Performance Requirements:**

40

41

Table 1: Method Performance Requirements

| | |
|--|---|
| Selectivity Study | 90% probability of identification with 95% confidence (33 correct identifications out of 33 samples known to contain Type-A proanthocyanidin).* |
| *Some aberrations may be acceptable if the aberrations are investigated, and acceptable explanations can be determined and communicated to method users. | |

42

43 **6. System suitability tests and/or analytical quality control:**

44 Suitable methods will include blank check samples, and check standards at the lowest point
45 and midrange point of the analytical range.

46

47 **7. Reference Material(s):**

48

49 SRM 3281 Cranberry (Fruit)*

50 SRM 3282 Low Calorie Cranberry Juice Cocktail*

51 SRM 3283 Cranberry Extract*

52 SRM 3284 Cranberry-Containing Solid Oral Dosage Form*

53

54 *Characterized for organic acids, not proanthocyanidins, but provides a standard,
55 homogeneous material.

56

57 Please contact Dr. Catherine Rimmer, Research Chemist, NIST, for materials.

58 catherine.rimmer@nist.gov, (301) 975-3651.

59

60

61 Refer to Annex F: *Development and Use of In-House Reference Materials* in Appendix F:

62 *Guidelines for Standard Method Performance Requirements*, 19th Edition of the AOAC

63 INTERNATIONAL Official Methods of Analysis (2012). Available at:

64 http://www.eoma.aoac.org/app_f.pdf

65

66 **8. Validation Guidance:**

67 Information on analytical performance for all claimed matrixes must be submitted. Method
68 developers should evaluate at least 33 samples known to contain Type-A proanthocyanidin
69 and at least 33 samples that contain non Type-A proanthocyanidin. Validation data must
70 include examples of non Type-A matrices listed in tier 1 of table 3. Additional non Type-A
71 matrices are listed in tier 2 of table 3. Validation test samples should be blind coded, and
72 randomly mixed with respect to presence or absence of Type-A proanthocyanidin.

73

74 Appendix D: Guidelines for Collaborative Study Procedures To Validate Characteristics of a
75 Method of Analysis; 19th Edition of the AOAC INTERNATIONAL Official Methods of Analysis
76 (2012). Available at: http://www.eoma.aoac.org/app_d.pdf

77

78 Appendix F: Guidelines for Standard Method Performance Requirements; 19th Edition of the
79 AOAC INTERNATIONAL Official Methods of Analysis (2012). Available at:

80 http://www.eoma.aoac.org/app_f.pdf

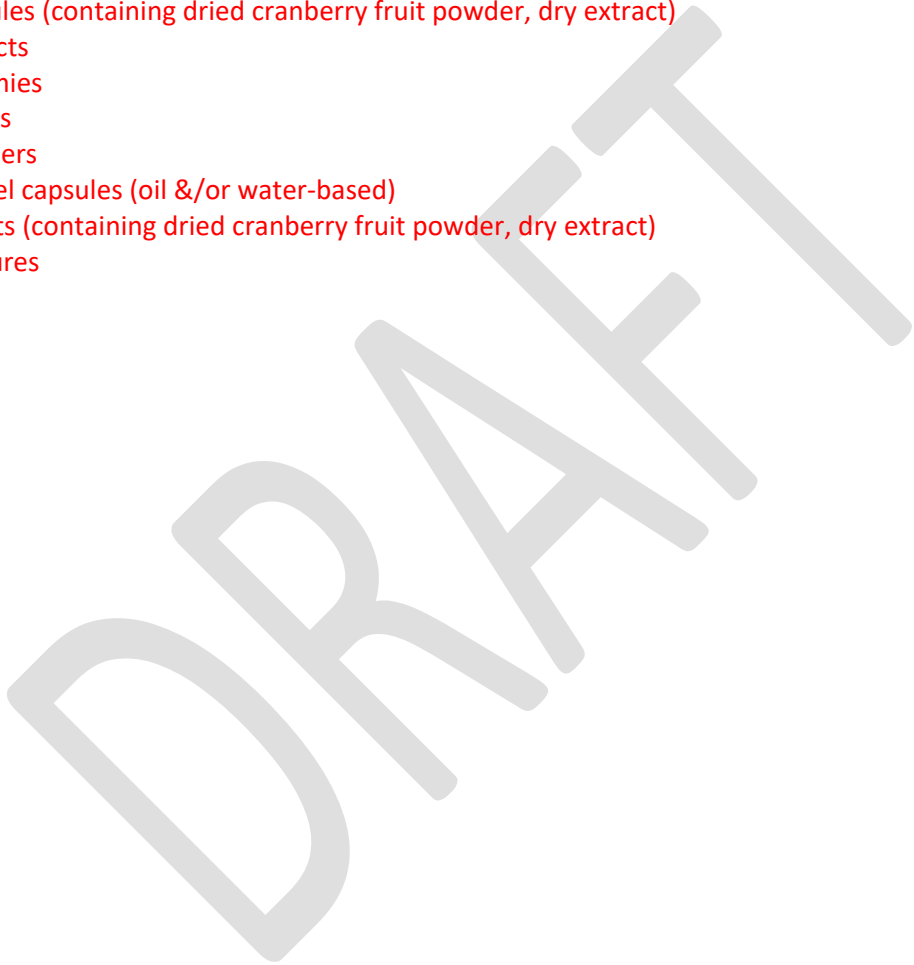
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103

[Appendix K](http://www.eoma.aoac.org/app_k.pdf): Guidelines for Dietary Supplements and Botanicals; 19th Edition of the AOAC INTERNATIONAL Official Methods of Analysis (2012). Available on line at:
http://www.eoma.aoac.org/app_k.pdf

9. Maximum Time-To-Result: None

Table 2: Examples of Dietary Supplements

- capsules (containing dried cranberry fruit powder, dry extract)
- extracts
- gummies
- liquids
- powders
- softgel capsules (oil &/or water-based)
- tablets (containing dried cranberry fruit powder, dry extract)
- tinctures



104 **Table 3: Sources of Non Type-A Proanthocyanidins**

105

106 **Tier 1 (required)**

107

108 Apple (*Malus domestica* Borkh.)

109 Grape skins, grapeseed extract (*Vitis vinifera* L.)

110 Black chokeberry (*Aronia melanocarpa* (Michx.) Elliott) or Purple chokeberry (*Aronia arbutifolia*

111 (L.) Pers.)

112

113

114

115 **Tier 2 (additional)**

116

117 *Ginkgo biloba* L.

118 Hawthorn (*Crataegus laevigata* (Poir.) DC., *Crataegus monogyna* Jacq.)

119 Dragon's blood (*Croton lechleri* Müll.Arg.)

120 Japanese horse chestnut (*Aesculus turbinata* Blume)

121 Pine bark (*Pinus sylvestris* L., *Pinus pinaster* Aiton)

122 Plum (*Prunus domestica* L.)

123 Other *Vaccinium* species: huckleberry (*V. ovatum* Pursh), highbush blueberry (*V. corymbosum*

124 L.), lowbush blueberry (*V. angustifolium* Aiton), lingonberry (*V. vitis-idaea* L.), European

125 cranberry (*V. (Turcz. ex Rupr.) Schmalh.*)

126 Cocoa (*Theobroma cacao* L.)

127 Barley (*Hordeum vulgare* L.)

128 Sorghum (*Sorghum bicolor* (L.) Moench)

129 Blackcurrant (*Ribes nigrum* L.)

130 Gooseberry (*Ribes uva-crispa* L.)

131 Common bean (*Phaseolus vulgaris* L.)

132 Hazelnut (*Corylus avellana* L.)

133 Pecan (*Carya illinoensis* (Wangenh.) K.Koch)

134 Pistachio (*Pistacia vera* L.)