(169) Antioxidant Levels in Frozen and Processed Lingonberries and Bog Blueberries

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Frozen lingonberries (Vaccinium vitis-idaea subsp. minus) and bog blueberries (V. uliginosum) were processed using recipes of the Alaska Cooperative Extension Service. Overall antioxidant activity (H-ORAC) was 71 μmol-g⁻¹ of TE for frozen bog blueberries and for lingonberries, 160–165 μmol-g⁻¹ of TE. Processing into fruit leather and drying increased levels in bog blueberries to 260–430 μmol-g⁻¹ of TE and lingonberries to 457–939 μmol-g⁻¹ of TE. Leathers and dried fruit had significantly higher levels of total anthocyanins (frozen bog blueberries: 2.1 μg-g⁻¹, leather: 8.0 μg-g⁻¹, dried: 9.8 μg-g⁻¹; frozen lingonberries 1.4 μg-g⁻¹, leather: 4 μg-g⁻¹, dried: 5.2 μg-g⁻¹); total phenolics (frozen bog blueberries: 4.8 μg-g⁻¹, leather: 19 μg-g⁻¹, dried: 26 μg-g⁻¹; frozen lingonberries 7.7 μg-g⁻¹, leather 24 μg-g⁻¹, dried: 38 μg-g⁻¹); and quercetin (frozen bog blueberries: 6.7 μg-g⁻¹, leather: 86 μg-g⁻¹, dried: 150 μg-g⁻¹; frozen lingonberries 7.7 μg-g⁻¹, leather 110 μg-g⁻¹, dried: 430 μg-g⁻¹). Bog blueberries did not have detectable levels of p-coumaric acid or benzoic acid, but lingonberries showed a significant increase in dried fruit and leather (frozen fruit p-coumeric: 0.18 μg-g⁻¹, leather: 0.45 μg-g⁻¹, dried: 1.4 μg-g⁻¹; frozen fruit benzoic: 0.41 μg-g⁻¹, leather: 0.84 μg-g⁻¹, dried: 0.71 μg-g⁻¹). Frozen and processed lingonberries had little or no vitamin C. Bog blueberries had detectable levels in all treatments [highest in leather (440 μg-g⁻¹), frozen berries (220 μg-g⁻¹)]. ORAC, total anthocyanins, total phenolics, and quercetin were detected in all other processing methods (canned fruit, syrup, canned juice, jam, sauce, frozen juice, and freezer jam). Levels were similar to or lower than frozen fruit.