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An antidiabetic compound from *Vaccinium arctostaphylos* berries

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Background and Aims: Vaccinium arctostaphylos L. (Ericaceae) is a compact shrub up to 3 m in height which grows wildly in the northern forests of Iran. Its berries are edible cherry and are used as an antidiabetic agent in Traditional Iranian Medicine. The present study deals with the bioassay guided fractionation of V. arctostaphylos berry extract and in vitro α-amylase enzyme inhibition assay of the extract and fractions for their antidiabetic activities.
Methods: Bioassay-guided fractionation of the fruit extract of Vaccinium arctostaphylos using preparative PC, and the in vitro α-amylase inhibition assay, as biological monitor model, were used for the isolation. The isolated compound was characterized by spectroscopic methods.
Results: The crude extract showed a suitable dose-dependent inhibitory effect against α-amylase activity [IC_{50} = 1.91 (1.89 – 1.94) mg/mL]. The activity guided fractionation of the extract led to the isolation and purification of an anthocyanin from it. The compound was identified as malvidin-3-O-β-glucoside by determination of its hydrolytic and spectral data. The compound demonstrated a suitable dose-dependent enzyme inhibitory activity [IC50 = 0.16 (0.16 – 0.17) mg/mL].
Conclusions: Vaccinium arctostaphylos berries and malvidin-3-O-β-glucoside (the active constituent from the berries) showed potent α-amylase inhibitory activity.

Keywords: Vaccinium arctostaphylos; α-Amylase inhibitory activity; Malvidin-3-O-β-glucoside