LETTER TO THE EDITOR

Are Anthocyanins and Flavonoids Responsible for the Blood Pressure Lowering Effect and Antiplatelet Activity of Morus nigra?

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Berries of Morus nigra or black mulberry, with the common name shah-toot in Persian, are used in Iranian traditional medicine to lower blood pressure and in some cases for anti-platelet activity. Studies on Morus nigra have shown that the bark, fruits and leaves have different pharmacological effects: antihyperglycemic,1 antinociceptive,2 antiinflammatory3 and antioxidant.4 Morusin is responsible for the antinociceptive activity,2 but raw parts of the black mulberry have been used for the antihyperglycemic effect, which makes it difficult to establish the roles of different substances. Betulinic acid, β-sitosterol and germacrol have been implicated in the anti-inflammatory activity,3 and the antioxidant activity has been correlated with the total phenolic content.4 Black mulberry contains a wide range of compounds, e.g. olcancolic acid, apigenin, cyclocommunol, morusin, cyclomorusin, kuwanon C, daucosterol, ursolic, β-sitostero5 and different anthocyanins.6

Anthocyanins have various pharmacological effects including blood pressure lowering, antioxidative, anti-inflammatory and cardioprotective activities.7,8 It has also been shown that prenylflavonoids have anti-platelet activity.9 On the basis of these observations and previous studies, the authors hypothesize that the antihypertensive and antiplatelet activities of Morus nigra are attributable to anthocyanins and flavonoids in its fruits. This hy-

Figure 1: General structures for anthocyanins and flavonoids, propranolol, and warfarin.
pthesis is supported by the fact that anthocyanins and flavonoids have similar structures to blood pressure lowering drugs such as propranolol and synthetic anticoagulants such as warfarin (Figure 1).

REFERENCES