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FILE: ▪Bilberry (*Viccinium myrtillus*)
▪French Maritime Pine (*Pinus pinaster*)
▪Glaucoma

HC 080581-359

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RE: Bilberry and French Maritime Pine Extract May Have Beneficial Effects in Glaucoma Prevention

Steigerwalt RD, Gianni B, Paolo M, et al. Effects of Mirtogenol® on ocular blood flow and intraocular hypertension in asymptomatic subjects. *Molecular Vision*. 2008; 14:1288-1292.

The etiology of glaucoma is not fully understood, however, an elevated intraocular pressure (IOP) is known to increase the risk for developing this disorder. IOP is regulated by secretion and drainage of aqueous humor in the eye. Vascular function may also play a role. Primary open-angle glaucoma is one of the most common forms of glaucoma and can cause blindness if left untreated. Nutritional intervention can significantly reduce the risk for developing other eye diseases (cataract, diabetic retinopathy, and age-related macular degeneration). An effective dietary prevention for reducing the risk of primary open-angle glaucoma has not been identified. A standardized extract of bilberry (*Viccinium myrtillus*; Mirtoselect®, Indena, Milan, Italy) has been shown to counteract the hyperpermeability of eye capillaries which could decrease the fluid released into the eye. A standardized extract of French maritime pine bark (*Pinus pinaster*; Pycnogenol®, Horphag Research, London, UK) can increase endothelial nitric oxide production and relaxation of ocular arteries which helps regulate fluid outflow into the eye. The purpose of this study was to evaluate a proprietary compound that combines both bilberry and French maritime pine bark in patients with elevated IOP without glaucoma.

Patients (n = 38, mean age 45 years) with an elevated IOP (22-26 mmHg) but no signs of glaucoma and who were not treated for elevated IOP participated in this controlled unblinded study. The study was conducted at the University of Chieti-Pescara in San Valentino, Italy. Patients with cardiovascular diseases that require medical intervention were excluded. Patients were treated with 1 tablet of Mirtogenol® (a trademark of Indena S.p.A and Horphag Research Ltd) twice daily for 6 months. Mirtogenol tablets contain 40 mg of Pycnogenol and 80 mg of Mirtoselect. The control group was untreated. IOP and ocular blood flow were measured.

Baseline IOP was comparable between the groups. The IOP after 3 months of treatment with Mirtogenol was 22.0±2.6 mmHg, which was statistically significantly less than baseline and the control group (24.5±2.3 mmHg, $P<0.05$). The values were maintained at the 6 month visit. Nineteen out of 20 patients in the Mirtogenol group had a reduced IOP whereas only 1 of the 18 patients in the control group had a lowered IOP at the 6 month visit. None of the patients in either group had an increased IOP. Visual acuity was unchanged. Systolic and diastolic blood flow significantly improved from baseline in the ocular arteries of patients treated with Mirtogenol ($P < 0.05$). There was no change in the blood flow of patients in the control group. There were no side effects reported.

The authors state that the improvement in ocular blood flow suggests that fluid release from ocular arteries into the eye is normalized to yield a healthier IOP. The study did not further investigate whether Mirtogenol affects outflow pathways or aqueous humor inflow or both. The study demonstrated that dietary intervention can help to control IOP and increase ocular blood flow in asymptomatic subjects. The authors speculate that if taken for a longer duration Mirtogenol may prevent an evolution to higher pressure and symptomatic glaucoma. These preliminary findings are noteworthy. A clinical trial with a larger number of subjects is necessary to confirm the findings and an even longer trial would be of value. It would also be interesting to follow the patients after treatment has ended to determine if their IOP returned to baseline values. A return to baseline IOP would provide strong evidence of a Mirtogenol-induced benefit.

—Heather S. Oliff, PhD

The American Botanical Council has chosen not to include the original article.