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## Experimental study on myopia control of bilberry anthocyanins

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**Objective:** To investigate effects of bilberry anthocyanin on form-deprivation myopia in guinea pigs and its mechanism.

**Method:** A total of 30, 3-week old healthy guinea pigs were randomly assigned to groups A, B and C with ten (10) in each group. The guinea pigs in group A were given bilberry anthocyanin and in group B were given medication after their eyes had been covered for 14 days. In group C were given normal saline. At Days 1, 14 and 28, diopter and length of optic axis were measured. At Day 28, MMP-2 mRNA and Collagen I mRNA were test by quantitative PCR (Q-PCR). MMP-2 and Collagen I proteins were observed by Western blot.

**Results:** After covering for 14 days, optic axis was elongated and diopter progressed toward myopia in the covered eyes of the non-dosing group (group C). No significant change was observed for optic axis or diopter in dosing group (group A). At day 28, non-medicated group (group C) showed further elongated optic axis in the covered eyes while the diopter further progressed toward myopia and thus a stable myopia model was established. In dosing groups (groups A and B), covered eyes showed reduced expression of MMP-2 and less severe myopia as compared to the covered eyes in group C.

**Conclusion:** By inhibiting MMP-2 protein expression and preventing Collagen-I degradation, orally administered bilberry anthocyanin enhances sclera structure and thereby inhibits the formation of form-deprivation myopia in guinea pigs. Orally administered bilberry anthocyanin has preventive effect against form-deprivation myopia in guinea pigs.

## Biography

Hong-Wei Deng is the Assistant Professor of Department of Pediatric Ophthalmology and Vice Chairman of medical services department of the Shenzhen Ophthalmological Hospital, China. She has completed her graduation from Henan Medical University in 1995 and MD in 1999. She has done her PhD from Jinan University, Department of Ophthalmology in 2002. She also served as the observer in Krieger Children's Eye Center at the Wilmer Institute, USA and Children's Hospital of Boston, Harvard University. She was awarded industry research and development award on the Chinese National Invention Patent: 200410027122 for her research on porous carbon - polyvinyl alcohol hydrogel artificial cornea. She has published several papers in reputed journal and has been serving as an Editorial Board Member of reputed journals.

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