

Human Health	Research Theme	Active Components	Subjects	Functionalities/Results/Conclusions	Researchers
Eye Health	Dark Adaptation Study	Blackcurrant Anthocyanins	12 Healthy Subjects (4 males, 8 females)	Visual threshold after oral intake of BCA is lower than that before intake at every dose level	Nakaishi H et al
	Transient Refractive Alteration Study	Blackcurrant Anthocyanins	21 Healthy Subjects (age 20-25)	Oral intake of Blackcurrant Anthocyanins has the effect of preventing mopic refractory shift after visual tasks on video display terminals.	Matsumoto H et al
	Asthenopia	Blackcurrant Beverage including anthocyanin	21 Subjects with mild myopia (Average age: 20.9) Two-consecutive-hour computer workload for eyes	Refractivity was maintained by cassis consumption (improvement of focus freezing phenomenon) Asthenopia was reduced by cassis consumption.	Osamu Katsuumi
	Comparison between Blackcurrant and Blueberry	Blackcurrant Beverage and Blueberry Beverage, both include anthocyanin	10 Subjects (Average age:28.4) Two-consecutive-hour computer workload for eyes	The focus freezing phenomenon was improved by cassis consumption. This effect was not observed with blueberry.	Osamu Katsuumi
	Glaucoma	Blackcurrant Anthocyanin	30 patients with normal tension glaucoma (Age66.7±6.9)	Blood flow through the optic papilla increased significantly (approximately 20%)	Osamu Katsuumi
	Transient Myopic	Blackcurrant Anthocyanin	21 Healthy subjects with mild myopia	Suppressive effect on transient myopic shift is greater in BCA intake before PC works than in not BCA.	Nakashi H et al
	Relaxation effect for tension of ciliary smooth muscle	Blackcurrant Anthocyanin	Bovine ciliary smooth muscle isolated from the eyeball was contracted in vitro and given anthocyanins	It was confirmed that D3R relaxed the tension of ciliary smooth muscle moderately and continuously. The same relaxation effect was also observed in C3R.	Nakashi H et al

Night Vision	Blackcurrant Juice including anthocyanins	Experiment 1: 11 Healthy men Experiment 2: 12 Healthy men	Blackcurrant anthocyanins, i.e. Delphinidin- and Cyaniding-Glycosides, promote dark adaptation, while promoting more rapid regeneration of the rod visual pigment rhodopsin. Anthocyanins have an effect on scotopic vision are delphinidin-and cyaniding-glycosides and, therefore, blackcurrant anthocyanins enhance night vision.	Tominagal S et al
Refractive and Accommodative	Blackcurrant Anthocyanin	19 Healthy Human Subjects(Average Age 21)	Oral intake of Blackcurrant anthocyanin is potentially effective for asthenopia	Lida H et al
Under-eye circles	Blackcurrant polyphenols	66 under-eye circles developed under both eyes in 33 subjects	44 under-eye circles was noted, 70%of the symptoms, 17 under-eye circles unchanged, 5 under-eye circles affravated. Most of the subjects felt the effect of Blackcurrant polyphenols intake improved their under-eye circles.	JTB
Effects on Retinal Blood Flow Circulation of Patients with normal tension Glaucoma	Blackcurrant Anthocyanins	30 consecutive patients with Normal Tension Glaucoma. 9males and 21 females. Mean age:66.7±6.9 with range 51 to 80 years old	Oral administration of anthocyanins tablets significantly increased the blood flows at both the neuroretinal rim of the optic nerve head and peripapillary retina. With no significant changes in mean blood pressures. IOPs or OPPs. These results suggest that oral administration of anthocyanins might be a safe and valuable option for neuroprotective treatment in patients with Normal Tension Glaucoma.	Ohguro I et al