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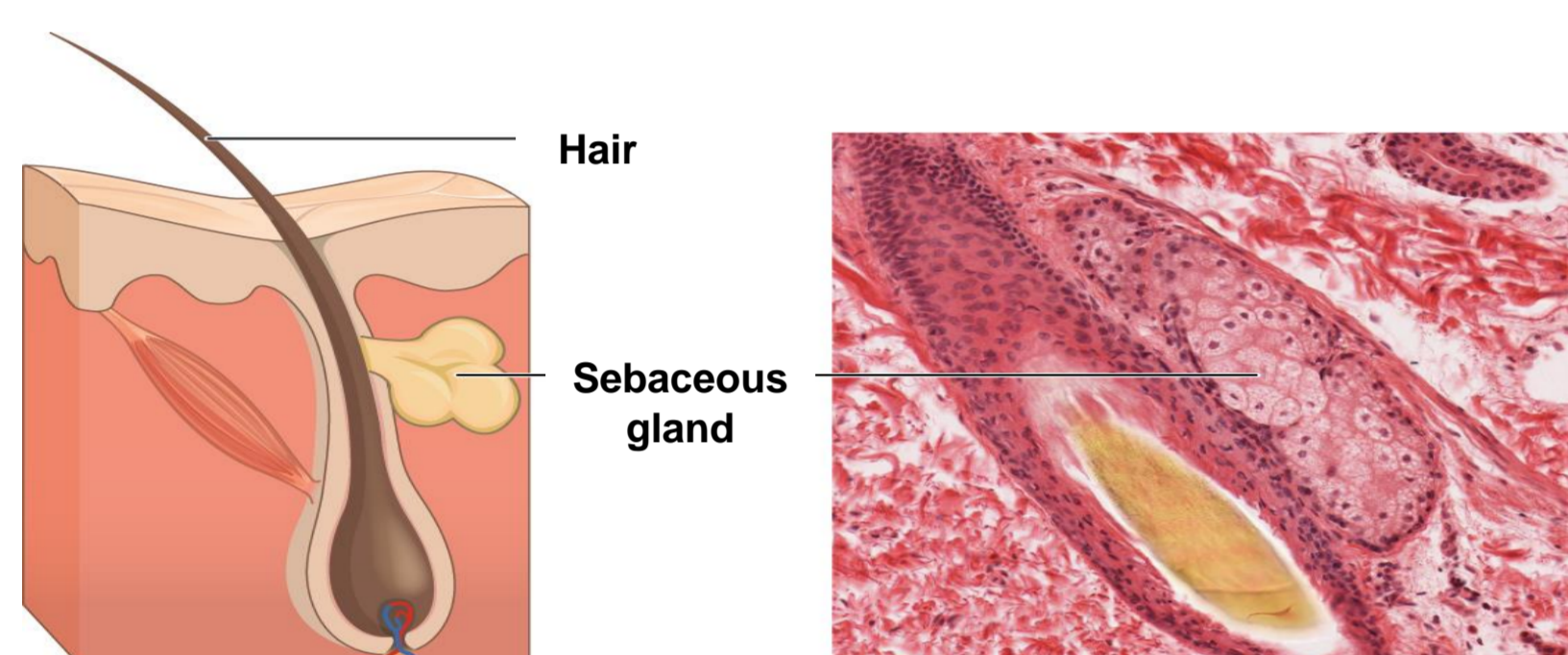
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INTRODUCTION

Age-induced body odor is associated with emission of the skin gases 2-nonenal (Haze et al., 2001) and diacetyl. Diacetyl is produced from L-lactate in sweat by bacterial activity. Higher emission of 2-nonenal in older people results from oxidative stress-induced lipid peroxidation of fatty acids (Ishino et al., 2010) in sebaceous glands potentially by declined antioxidant defences. Blackcurrant has antioxidant effects.



AIM

We examined primarily whether New Zealand blackcurrant (NZBC) powder decreased the emission of 2-nonenal in older adults.

METHODS

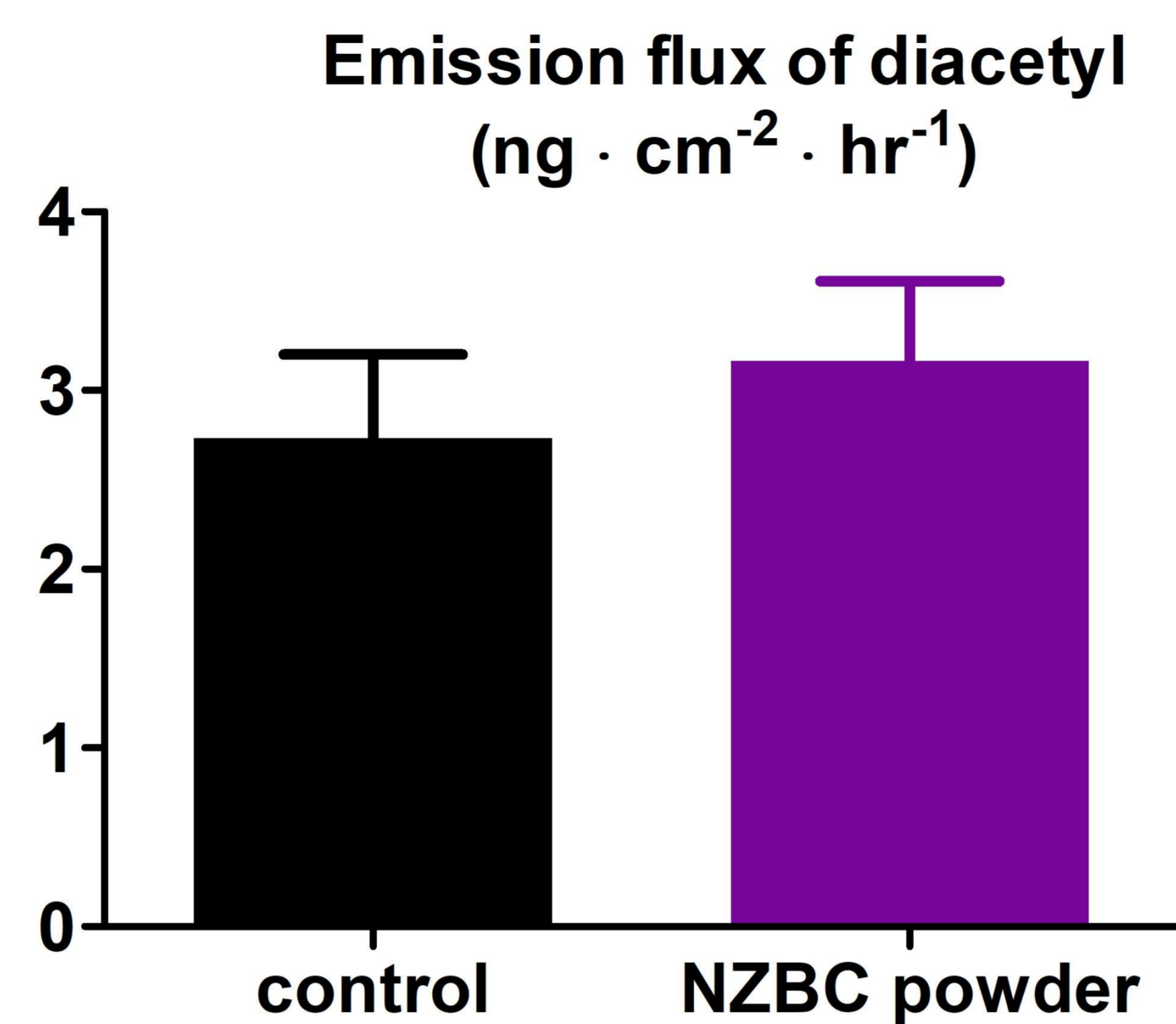
Fourteen middle aged and older adults (9 males, age: 55±5 yr, mean±SD, range 49-64 yr) volunteered. Participants consumed NZBC powder for 7 days (Sujon Berries, Nelson, New Zealand, 6 g·day⁻¹ with 138.6 mg anthocyanin, 49 mg Vit C, 5.2 g of carbohydrates and total phenolic content of 271.6 mg per serving).



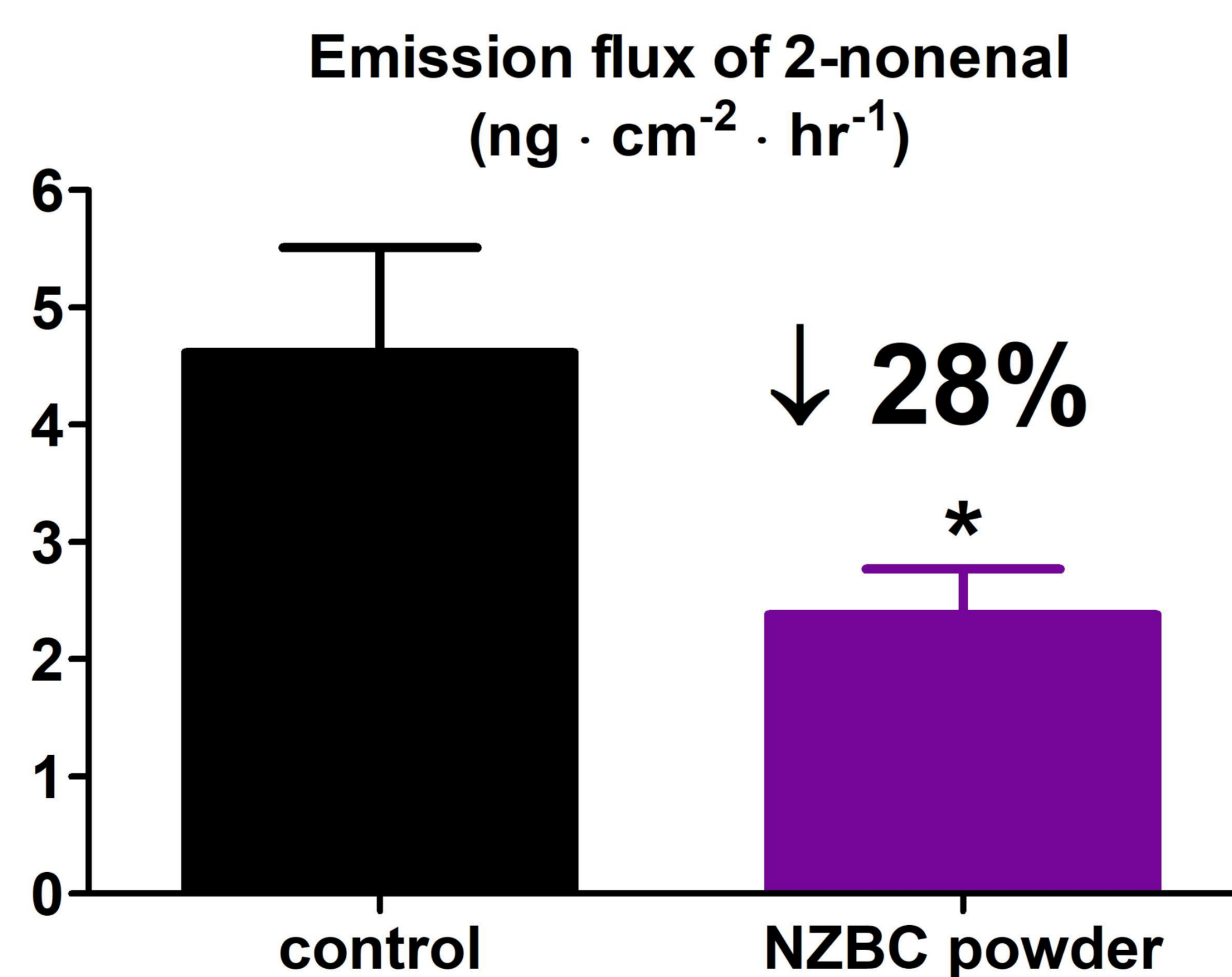
Two hours after the last intake, a passive flux sampler (Kimura et al., 2016) was applied to the skin in the base of the neck for one hour. Participants did not use hot water or soap for 48 hrs on the skin sampling location.

The sampler consists of a polypropylene screw cap with trapping media (MonoTrap®, DCC18, GL Science, Japan) and gas chromatography-mass spectrometry was used for media analysis of 2-nonenal and diacetyl (Kimura et al., 2016). Dietary anthocyanin intake was quantified by analysis of a food frequency questionnaire and anthocyanin information on <http://phenol-explorer.eu/>.

RESULTS

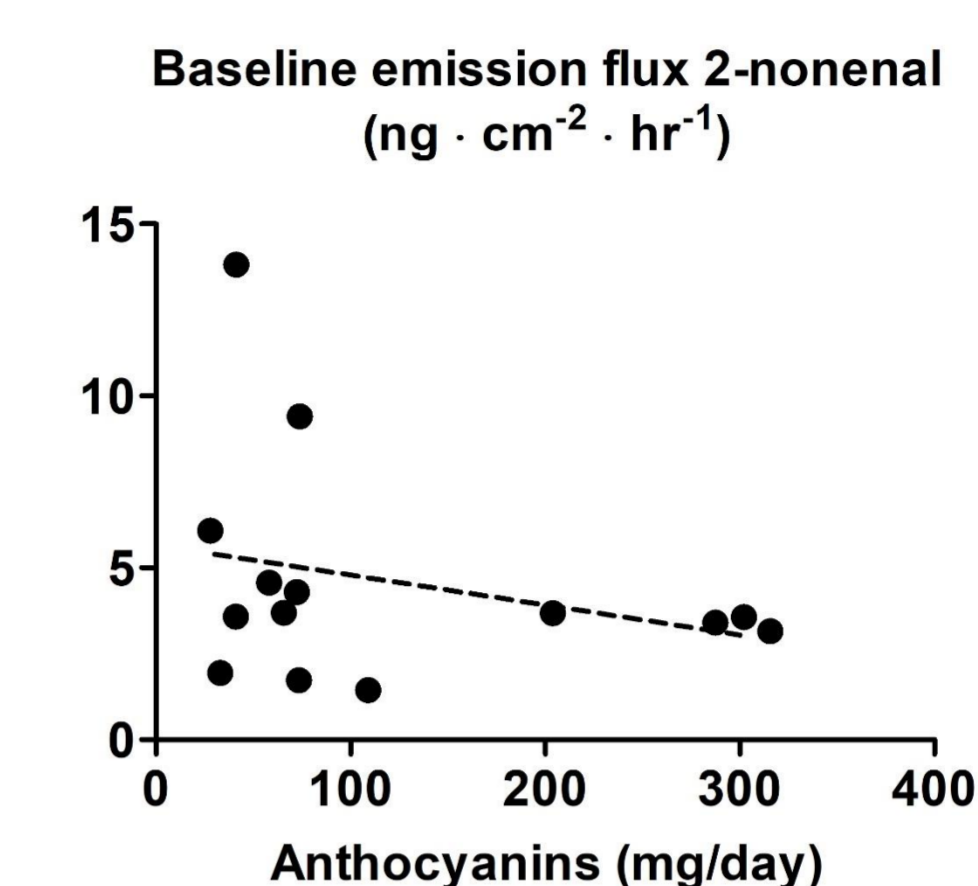


New Zealand blackcurrant powder had no effect on skin emission of diacetyl.

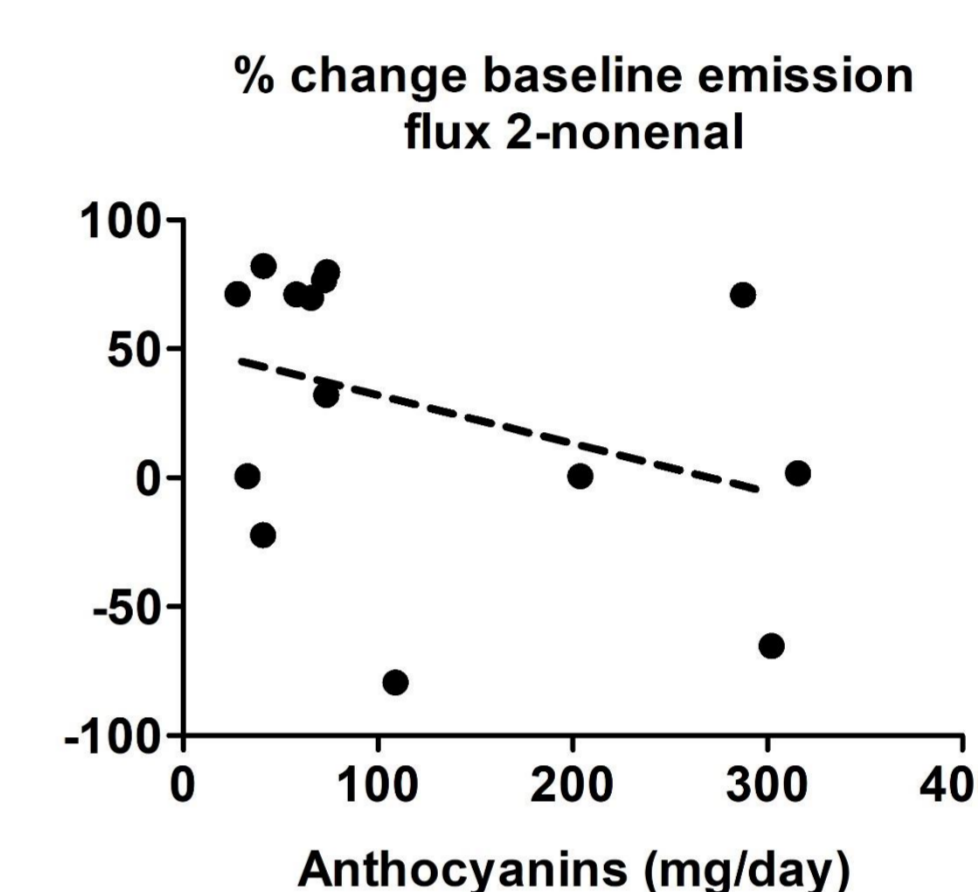


New Zealand blackcurrant powder reduced skin emission of 2-nonenal in older adults by 28% (two-tailed Mann-Whitney, P=0.01).

Six participants had reductions of 2-nonenal by more than 69%. The two participants with highest baseline 2-nonenal, i.e. 9.41 and 13.81 ng·cm⁻²·hr⁻¹, showed reductions of 80% and 82%, respectively.



Baseline 2-nonenal values were not significantly correlated with dietary anthocyanin intake



The % decreases in 2-nonenal with intake of NZBC powder were not significantly correlated with dietary anthocyanin intake

CONCLUSIONS

Seven day intake of New Zealand blackcurrant powder seems to be able to reduce body odor in older adults. Future work may address the potential of blackcurrant to reduce lipid peroxidation in human cells and affecting cell biology and human health.

REFERENCES

- Haze et al. 2-Nonenal newly found in human body odor tends to increase with aging. *J Invest Dermatol* 116(4), 520-524, 2001.
Ishino et al. Lipid peroxidation generates body odor component trans-2-nonenal covalently bound to protein in vivo. *J Biol Chem* 285(20), 15302-15313, 2010.
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ACKNOWLEDGEMENT

Special thanks to Bill Floyd (Japan Blackcurrant Association) for project conception. We thank Sujon Berries (Nelson, New Zealand) for supplements and Blackcurrant New Zealand Inc. for support for conference attendance.