

ROSE-HIP INCLUDING SEEDS AND SHELLS REPORTED TO REDUCE SYMPTOMS OF OSTEOARTHRITIS, IMPROVES QUALITY OF THE SKIN BY MECHANISMS WHICH MAY INVOLVE COLLAGEN AND LONGEVITY OF CELL MEMBRANES.

L. Petharat<sup>1</sup>, K. Wongsuphasawat<sup>1</sup>, K Winther<sup>2</sup>. (1) School of Anti-aging and Regenerative Medicine, Mae Fah Luang University, Chiangrai, Thailand University of Bangkok, Thailand; (2) Institute for Clinical Research, Gammel Kongevej, Copenhagen, Denmark.

**Purpose:** Rose-hip powder, containing seeds and shells, rich in a galactolipid, GOPO, was shown to alleviate pain and stiffness in osteoarthritis and inhibit MMP-1, an enzyme breaking down collagen, in the cartilage of joints and in the subcutaneous tissue of the skin, causing wrinkles. Collagen is supported by anti-oxidants including Vitamin C. Anti-oxidants can also improve the longevity of cell membranes. Animal studies show that natural vitamin C given as part of dried rose-hip powder is absorbed better than artificial vitamin C. The aim of this study was to test, if the present Rose-hip powder would have any impact on the depth of wrinkles of the face (crow feet), if natural vitamin C as part of rose-hip powder was absorbed better than artificial vitamin C and if the present powder would add to the longevity of cell membranes.

**Methods:** A number of 34 healthy volunteers, 35 - 65 years of age, were randomly allocated to 2 month oral treatment with either the strong anti-oxidant Astaxanthin 4 mg daily, well known for its reduction of wrinkles (n=17) or the present standardized rose-hip powder (Hyben-Vital®) 3 g daily (n=17) in a blinded manner. The depth of wrinkles was estimated initially and after 8 weeks, using a Skin Visioscan ® VC98. Another group of 16 healthy volunteers were given either a single dose of 15 g of the present rose-hip powder, equivalent to 125 mg of natural vitamin C or a single dose of 250 mg of artificial vitamin C. Blood levels of vitamin C was estimated initially and after 1, 2, 4 and 6 hours using photometric methodology. Eighteen other healthy volunteers were treated with Rose-hip powder 45 g daily for 28 days. Red cells were isolated before and after 14 and 28 days of treatment, respectively, and again one month after stopping treatment. Each portion of blood was stored in a blood bank for 5 weeks. Then the leak of haemoglobin (HGB) from red cells into the surrounding medium, indicating cell membrane disintegration, was measured. The Wilcoxon test was used for statistical evaluation within groups. Mann-Whitney for differences between groups. Data given is mean +/-sd.

**Results:** Astaxanthin as well as Rose-hip significantly reduced the depth of wrinkles: Visioscan index initially: Astaxanthin 46.1 +/- 7.8 vs two month 42.2 +/- 5.5 (p < 0.003). Rose-hip resulted in a similar and significant reduction of wrinkles: 45.9 +/-9.9 vs 42.1 +/- 5.4 (p<0.034). No difference between groups (Mann-Whitney p value p<0.995). Patients reported that they were equally satisfied by the two treatments (data not given). The lower dose of natural vitamin C (125 mg) given as rose-hip powder resulted in an improvement from 76.85 +/- 23.0 peaking after two hours 122.15 +/- 14.4 µmol/l (p<0.010). A similar pattern was seen when using the double dose of artificial vitamin C: initial level 71.7 +/- 25.6 peaking after 2 hours 119.1 +/- 21.0 µmol/l (p<0.010). No significant difference comparing groups. The leak of HGB, from erythrocytes, significantly declined during Rose-hip treatment. Initial value 57.2 +/-13.9 vs 2 weeks treatment 49.2 +/-16.2 (p<0.01). One month after stopping treatment, HBG levels were back to initial values (p<0.010).

**Conclusion:** The present data suggest that Rose-hip powder containing seeds and shells can have some impact on the protection of collagen and that vitamin C given in its natural form as a part of dried rose-hip powder is better absorbed than artificial vitamin C. The present rose-hip powder seems to improve the longevity of cell membranes.