

# The effectiveness of vitamin K derivatives in vascular skin therapy

Agata Markiewicz<sup>1</sup>, Bożena Tyszczyk<sup>2</sup>, Monika Pasikowska<sup>2</sup>, Malwina Zasada<sup>1</sup>, Elżbieta Budzisz<sup>1</sup>

<sup>1</sup> Department of Cosmetic Raw Materials Chemistry, Faculty of Pharmacy, Medical University of Lodz, Lodz, Poland

<sup>2</sup> Dr Irena Eris Cosmetic Laboratories, Dr Irena Eris Centre for Science and Research, Warsaw, Poland

## Characteristics of vascular skin

Facial skin redness is common aesthetic and cosmetic issue. Vascular skin is a common problem especially for women in middle-age. Persistent flushing, telangiectasis and erythema are situated especially on central facial area and accompany with feeling of burning, stinging and skinning. Phototype I and II, sensitive and dry skin is more vulnerable at appearing skin redness. The pathogenesis of vascular skin may be due to genetic, hormonal, environmental, emotions, alcohol, excessive sun exposure. Female hormones such as estrogens have significant prominence in emergence skin changes. Vitamin K is an essential vitamin, which is one of the four fat-soluble vitamins and occurs in 3 forms and lead to reinforce blood vessels by improving microcirculation and constricts blood vessels.

## Aim

The aim of this study was to evaluate the efficacy of cosmetics brand Pharmaceris in vascular skin care. Products include two different derivatives of vitamin K (MQ and Epoxy MQ), at concentrations of 0.1% and 0.5%.

Table 1. The analysis of the condition of the skin after 28 days of treatment

Skin parameters	pr. 2, n=24		pr. 2a, n=24		pr. 3, n=22		pr. 3a, n=22	
	whole group	Actual improvement	whole group	Actual improvement	whole group	Actual improvement	whole group	Actual improvement
hydration	Increase by 3%	Increase by 14% in 58%	Increase by 1%	Increase by 13% in 67%	Lack of improvement in less than 50% of the members		lack of improvement in less than 50% of the members	
Skin color - level of erythema	Decrease by 8%	Decrease by 14% in 71%	Decrease by 6%	Decrease by 14% in 63%	Decrease by 10%	Decrease by 12% in 77%	Decrease by 9%	Decrease by 15% in 73%
Skin color - level of melanin	lack of improvement in less than 50% of the members		10%	lack of improvement	lack of improvement in less than 50% of the members		lack of improvement in less than 50% of the members	
elasticity	Increase by 11%	Increase by 24% in 71%	Increase by 15%	Increase by 21% in 88%	Increase by 10%	increase by 26% in 68%	Increase by 11%	Increase by 23% in 73% bad.

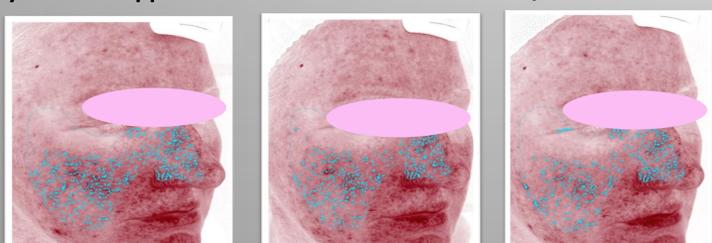
### Photographic documentation of the proband - analysis cream derivative Epoxy MQ - test 2

Ryc.1 Befor application Ryc. 2 After 2 weeks Ryc. 3 After 4 weeks



### Photographic documentation of the proband - analysis cream derivative Epoxy MQ - test 3a

Ryc.4 Befor application Ryc. 5 After 2 weeks Ryc. 6 After 4 weeks



## Materials and Methods

The study was conducted in two groups, one of them consisted of 24 people (test 2 and 2A), and the other included 22 participants (test 3 and 3A), mean age 50. The participants applied creams for a period of 4 weeks and were intended to be used twice a day. The tested products contained two different derivatives of vitamin K, encoded as MQ and MQ Epoxy. Creams were applied by the half, the right half of the face used concentration of 0.5% and 0.1% on the left. The skin parameters were measured before, after 2 and 4 weeks of using the products (D0 D14, D28 respectively). In addition, the participants completed a survey about tolerance and efficacy of products. Studies have been carried out at the Dr Irena Eris Centre for Science and Research. Measurements of parameters of facial skin were performed using standardized equipment Multi Probe Adapter (MPA) Courage-Khazaka and VISIA Canfield. The *in vivo* research evaluate the effect of the systematic application of creams was determined by measuring the level of erythema and melanin in the redness places of the skin, hydration and elasticity.

Figure 1. Respondents evaluate the efficacy of test 2 and 2a after 4 weeks of treatment

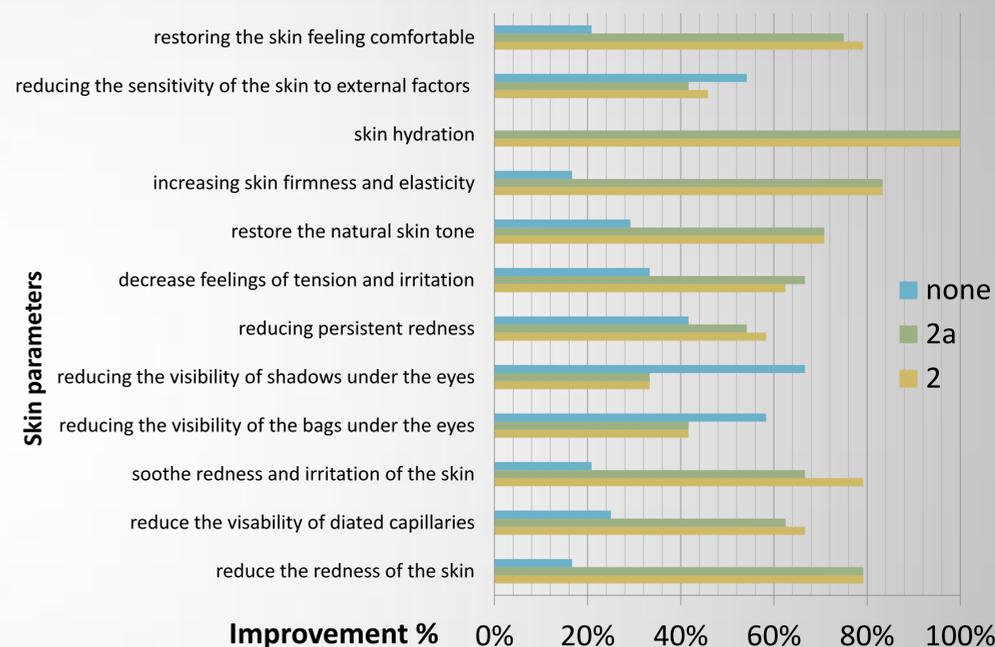
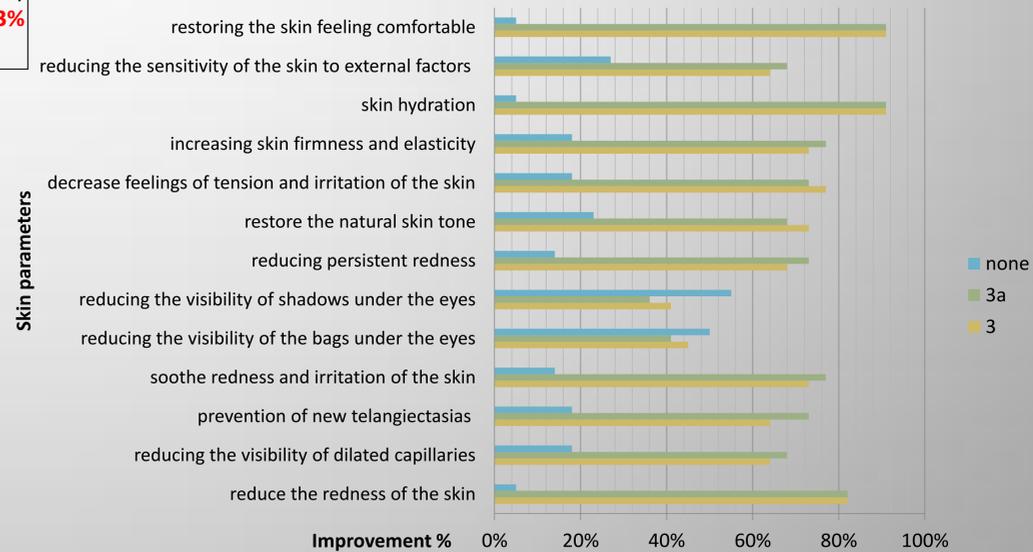


Figure 2. Subjective assessment of efficiency applied cosmetics in test 3 and 3A after 4 weeks.



### Photographic documentation of the proband - analysis cream derivative Epoxy MQ - test 3

Ryc.7 Befor application Ryc.8 After 2 weeks Ryc. 9 After 4 weeks



## Conclusion

Derivatives of vitamin K such as Epoxy MQ and MQ used in 0,1% and 0,5% give comparable results reducing redness of the skin, as an oxide of 1% vitamin K (phytonadione oxide) suitable in products nowadays available on the market. The results of research demonstrated improve of skin colour more significant by using twice less active substance (MQ and Epoxy MQ).