Identification of fatty oils in different peach oils by HPTLC with usage Nano-Sil C_{18}-100/UV_{254} glass plate

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One of the most commonly used oils in the cosmetic industry is peach oil. Often it is introduced into the face creams of factory and extremporal production. It shows antioxidant, adaptogenic properties, smooths fine wrinkles, improves complexion and skin elasticity. Such effects is due to the content of a large amount of vitamins and minerals, but the greatest value of the peach oil in the content of a large amount of polyunsaturated fatty acids. In the literature there are many data on the description of the peach oil composition, but at the same time it contains a limited information on assessing the quality of this oil. Neither the European Pharmacopoeia (EurPh) nor the State Pharmacopoeia of Ukraine (SPhU) doesn't contain requirements for it. Therefore, the purpose of our work was to assess the quality of peach oil from different manufacturers using the method of thin-layer chromatography. Analysis was done with using 5 different Peach oils.

EurPh, as well as the SPhU are recommended using the HPTLC method for identification of fatty oils (2.3.2. Identification of fatty oils by thin-layer chromatography). It was used to identify fatty oils in our research. The standard and test samples were spotted in the form of bands of width 5 mm using a 100 μL syringe on the CAMAG Linomat 5 sample applicator. For samples separation we used HPTLC Nano-Sil C_{18}-100/UV_{254} glass plate (10*10 cm). This modified silica layer allows sharper separations, shorter developing times, shorter migration distances, smaller samples and an increased detection sensitivity compared to octadecyl-modified HPTLC silica layers. The study was carried out in 20×20 cm twin trough glass chamber using e*ther R* as mobile phase A and mixture of solvents *methylene chloride R:glacial acetic acid R:acetone R* (20:40:50 v/v/v) as mobile phase B. Migration distance of mobile phase A was twice over a path of 5 mm and after twice over path 80 mm with mobile phase B. The detection was performed after sprayed with a 100 g/L solution of *phosphomolybdic acid R* in *ethanol (96%) R*, then plate was heated at 120˚ C and examined with using CAMAG TLC Visualizer 2 in daylight. The system was operated by winCATS software.

The obtained chromatograms of five samples of peach oil by the main spots correspond to the typical reference solution chromatogram (maize oil). They are different in the presence of a more pronounced first spot. It is well distinguished on the chromatograms of all five peach oil samples and has Rf=0.65. In all oil samples clearly visible four spots of fatty oils as in the chromatogram of the reference solution. In four peach oil samples the most intensive is the second spot, which correspond to the second spot of maize oil sample. In one of the samples along with the second spot, the third spot is more intense, in another one the more intensive are fourth and fifth spots. Rf value was determined for all four more intensive spots. It was 0.68, 0.70, 0.73, 0.76 respectively in all samples and correspond to the Rf value of fatty oils from maize oil. The obtained spots on the chromatograms indicate a close fatty acid composition of all five oils. But at the same time, the intensity of the spots indicates a different quantitative content of them, which necessitates further research on the study of peach oil fatty-acid composition.