

METHOD OF USE OF PRODUCTS IN PROFESSIONAL CARE OF HAIR AND FUR, UNIVERSAL SHAMPOO, HAIR AND FUR QUALITY IMPROVEMENT ADDITIVE, AND UNIVERSAL CONDITIONER

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Abstract:

The activities related to the professional care of human hair and animal fur are experiencing constant growth and development, resulting in a saturated market of cosmetic products that do not fully address all technical issues in this field. The present invention is based on the specific use of cosmetic products, carefully formulated, which involves separating the active substances for improving the quality of hair and fur from the cleansing active substances in shampoos and the post-care and conditioning active substances found in conditioners. To achieve notable effects, formulations of a universal shampoo and universal conditioner have been developed, which are compatible with various additives of active substances that improve the quality of hair and fur and are used between treatments with the universal shampoo and universal conditioner. The additives for improving the quality of hair and fur are introduced into the market as water-soluble concentrates, allowing professionals to adapt the galenic product to each hair and fur type based on specific needs and conditions to achieve a long-lasting impact on improving the quality of hair or fur.

Field of Technology to Which the Invention Relates: The subject invention pertains to a unique method of using products in the domain of professional care for human hair and animal fur. This unique approach is made possible by specially crafted products, including a universal shampoo, additives with active components for improving the quality of hair and fur, and a universal conditioner.

Technical Problem:

The present invention addresses several issues observed in the field of professional care for pets and humans, arising from the inability to effectively utilize and make use of active substances for enhancing the quality of hair and fur in shampoos and conditioners. Manufacturers introduce shampoos and conditioners to the market, serving as carriers of these active substances. However, during the washing

process, these substances remain on the hair and fur for too short a time, resulting in significant loss during rinsing. All shampoos and conditioners available on the market are produced as finished products without the possibility of subsequent composition adjustment, limiting their effect to short-lived results that cannot be improved. On the other hand, if we want to address various issues in a hair sample, such as enhancing volume, preserving natural color, and providing a desired level of oiliness, we would need to use multiple different products, each addressing one of these issues individually. This approach prolongs the treatment process, increases the cost of such services, and yields only minimal, short-lived effects. By introducing the concept of using cosmetics that separate the active substances for hair and fur care from the surfactants in shampoos and active components in conditioners, conditions are created to achieve significantly better results in cleaning, improving the quality of hair and fur, and conditioning.

State of the Art:

Until now, shampoos and conditioners have served as carriers of active substances for hair and fur care, which could not fulfill their role due to insufficient quantity and quality. These substances remained on the hair and fur surface for too short a time and were rinsed off together with the shampoo and conditioner. Some products recommend not rinsing off the conditioner from the hair and fur, using it as a leave-in conditioner. However, during the final stage of hair and fur cosmetic treatment, the conditioner's aim is to fill in the free spaces of the hair cuticle, and at this stage, the opportunity for the absorption of active substances intended to improve hair and fur quality is minimal. The un-rinsed excess fat attracts impurities and microorganisms. Comparing the compositions of functionally different shampoos, the formulations differ by only a few percentage points in the content of active substances for hair and fur care, while their similarity lies in the content of surfactants, which form the basis of every shampoo. Therefore, the essential difference between, for example, a shampoo for hair strengthening and a shampoo for volumizing lies in the percentage of active substances for hair and fur quality improvement, quantitatively, and possibly in one additional component that provides additional qualitative care. The situation is entirely identical with conditioners. Thus, packaged active components for hair and fur care as part of shampoos or conditioners cannot fulfill their role as they remain on the surface for too short a time, where they are supposed to act, and are rinsed off. On the other hand, shampoos and conditioners are not of sufficiently balanced composition to provide an optimal level of cleanliness and care without irritating or excessively greasing the hair, fur, and skin.

Description of the Invention:

The subject invention involves a specific method of using cosmetics intended for the care of humans and pets, made possible by the composition of the products according to the manufacturer's formulation. The idea behind this concept is to design shampoo and conditioner with a composition that achieves an excellent level of cleanliness while preventing skin irritation and hair damage. Additionally, the product allows for independent use of the active substance as additives for hair or fur. Through this separation of the substance responsible for the washing process and the substance that improves the quality of hair and fur, significantly better results are achieved, as confirmed by the results of specific tests, which will be discussed later.

Consumer Expectations of Hair and Fur Care Products Are:

- Effectiveness in washing and degreasing hair, fur, and skin.
- Homogeneous product without sedimentation, and homogenous pearlescence if applicable.
- Clear and pleasant scent.
- Foaming during use.
- High apparent density - practically corresponding to the rate of dispensing.
- Dermatological compatibility, ingredients listed in the INCI list.
- Easy rinsing.
- Improvement of hair and fur quality.

The universality of the product implies the use of ingredients compatible with both hair and fur, making them suitable for all cases where hair and fur can be found in a phenotypic sense, without exception. With the universal shampoo, we clean the hair from impurities and provide degreasing without affecting the skin, causing an extremely high refatting effect (which will be discussed later). Meanwhile, the universal conditioner contains components compatible with all hair and fur varieties, as well as with the universal shampoo. The primary role of the universal conditioner is to restore the natural level of grease (removed by the shampoo) and close the hair and fur cuticles for all phenotypic forms without exception.

The concept of washing hair and fur according to this method involves three key stages. The first step uses the universal shampoo, which is designed to thoroughly clean and degrease the hair or fur. Achieving cleaner hair and fur is essential since the basic condition for successful care and increased hair quality is that it is as clean as possible (which also enhances the refatting effect). The washing process should not end with the use of the universal shampoo since the skin and hair have lost even the necessary natural grease. It is essential to restore a certain level of grease, which primarily has a protective-barrier role, and excessive drying can disrupt the endocrine system. Once we have clean hair, the second washing step involves using additives with active substances to improve the quality of hair and fur, depending on the specific effect we want to achieve on them. This usage concept foresees the application of a water solution of the active substance, which is applied to the hair immediately after rinsing the shampoo and briefly massaged in. As the hair is degreased and clean, and the cuticle is open, the absorption of these components becomes possible. However, the inventive effect achieved in this phase is made possible by a precisely defined formulation of the universal shampoo used in the first step, which is compatible with the additives containing active substances to improve the quality of hair and fur. The carefully selected combination of surfactants in the shampoo and emollients that protect against irritation allows for a 750% greater effect of subsequent hair absorption compared to using tested shampoos available on the market, as shown by laboratory analyses, which will be discussed after describing the formulation itself. The applied active substance is not rinsed off from the hair and fur, and its complete retention inside the hair and fur allows for the next step of this patented concept. Preparations containing stabilized active substances to improve hair and fur quality are placed on the market as concentrates intended for different hair and fur types, specifically tailored to each form in which hair or fur can be found in a phenotypic sense. These concentrates are water-soluble, supporting the concept of non-rinsing, but they are not universal in their application. Instead, each concentrate is specifically developed for a particular problem to be solved on hair or fur. The use of these preparations and their effectiveness is enabled by prior use of a specially formulated universal shampoo and subsequently applying a specially formulated universal conditioner. This creates the conditions for the active substance to improve the quality of hair and fur to work entirely.

The third step involves applying the conditioner to the hair, providing additional care and restoring the necessary grease in a short period. After that, the hair cuticle is closed, allowing the active substance applied in the previous step to remain within the hair and fur and preventing its rinsing. This way, complete care is achieved, and excess grease is rinsed off.

The manufacturing formulations of the shampoo and conditioner are designed to fit into the previously stated usage concept and are part of a unique inventive idea. It is simply not possible to provide adequate care if the active substance to improve the quality of hair and fur is not separated from the shampoo and conditioner and applied separately. On the other hand, it is also not possible to achieve desired results through such usage if the composition of the universal shampoo and universal conditioner does not provide minimal irritation, a good refatting effect, and subsequent care.

Universal Shampoo

Universal Shampoo is introduced into the market as a homogenous, transparent, viscous liquid with a mild scent, comprising 11 components. It is intended for use at temperatures between 18-35 °C. The main characteristic of this formulation is the use of less irritant surfactants compared to commercially acceptable solutions. The raw material composition of the shampoo is as follows:

Aqua (54.3%)

Magnesium Laureth Sulfate, Disodium Laureth Sulfosuccinate (30%)

Disodium Cocoamphodiacetate (7%)

Cocamidopropyl Betaine (5%)

Coco-Glucoside and Glycerol Oleate (1.5%)

Panthenol (0.5%)

PEG-7 Glycerol Cocoate (0.5%)

Aloe Barbadensis (Aloe) Leaf Juice (0.3%)

DMDM Hydantoin (0.3%)

Simmondsia Chinensis (Jojoba) Seed Oil (0.5%)

Lavandula Angustifolia (Lavender) Oil (0.1%)

The product does not contain sodium chloride or other viscosity regulators, and it excludes the use of preservatives from the paraben group. The formulation of the universal shampoo ensures a product that, compared to certain available products in the market, exhibits significantly lower irritability and prepares the hair to absorb the active substance, which nourishes and nurtures it. The results of a comparative laboratory analysis,

conducted by the Institute of General and Physical Chemistry in Belgrade on March 7, 2016, are presented in Table 1.

Table 1. Results of a comparative laboratory analysis of the universal shampoo, sample no. 1 on the market, and a test sample developed at the beginning of the development process.

Sample	ZEIN test	RBC test	Refatting effect
Universal Shampoo	135	0,02	1,5 mg/g
Market Shampoo Premium	165	0,08	0,2 mg/g
Development Sample Universal Shampoo	175	0,10	0,2 mg/g

The Zein test method, according to Invitox No. 26, is recognized as a "test for the evaluation of the relative mildness of surfactants/detergents" and was established in 2003. In May 2005, the University of Liverpool published a report titled "Review of the Status of the Development of Alternatives to Using Animals in Chemical Safety Testing and Identification of New Areas for Development or Research in the Context of the Proposed REACH Regulation," which includes in vitro methods for testing chemical skin irritation, one of which is the Zein test. As for the values obtained from the Zein test, it is recommended that all products that come into contact with the skin of hands have a Zein number below 200, and for shampoos, a value below 165 is recommended. Values of 155 and below are usually referred to as "mild" and "extra mild" formulations, indicating that the surfactants are of particularly high quality, and their structure is ideally suited for hair and skin washing, with minimal possibility of skin irritation.

The RBC (Red Blood Cell) test is based on the degradation of red blood cell proteins (from which the method's name derives). This test determines irritability in the case of sensitive and damaged skin. Values up to 0.15 are considered acceptable for washing and cleaning products. From the table, it can be seen that the universal shampoo shows a value 7.5 times lower than the allowed quality parameter and 4 times lower than the sample on the market.

The greatest ingenuity of this formulation lies in the refatting effect test, which indicates how much protective components from the product have been absorbed by the skin, such as betaines, coconut oil amides, various plant extracts, etc. This practicality shows additional skin protection by filming dermatologically compatible components, and higher quality products have a higher value, which, in turn, reduces the Zein value as the skin is additionally protected. The universal shampoo demonstrates a 750% better effect on skin

and hair care compared to the sample on the market. The table also shows that the first, so-called initial product sample during the formulation development process did not yield desired results, so work on development continued until achieving the right balance of components that produce significantly improved effects on the hair. This formulation is unique, and any change in the product's composition significantly diminishes the functional effects of the entire usage concept.

Hair and Fur Quality Enhancer (Volumizing Hair and Fur Additive):

The product is introduced into the market as a homogeneous pale yellow liquid, packaged in a bottle with a sprayer. The planned dosage is 2ml in 1L of water for hair or fur treatment, just before use.

The raw material composition of the product is as follows:

Propylene Glycol (44.5%)

Aloe Vera Extract (50%)

Collagen in a soluble form (5%)

Traces of preservatives: Phenoxyethanol and Ethylhexylglycerin (0.5%)

The product is applied to the hair or fur and is not rinsed out. The analysis of the product's effect is based on the apparent volume of the hair, which is measured in a quartz glass container after washing and drying. In fact, it measures the volume that 1g of washed and dried hair/fur occupies. Table 2 shows the results of the analyses conducted by the Institute of General and Physical Chemistry in Belgrade.

Table 2. Analysis of the Apparent Volume of the Hair and Fur Volumizing Product

Concentration	Added volume (ml/g)	ZEIN test
0,5 ml/l	4,1	20
1ml/l	6,2	25
2ml/l	9,5	30
3ml/l	10,0	30

Universal Conditioner:

The universal conditioner is introduced into the market as a homogeneous creamy liquid, used at temperatures between 18-35 °C, with a mild scent, and comprising 9 components. The main characteristic of this formulation is the use of substances that intensely nourish and protect the hair and skin. The product obtained according to this formulation is intended for use after using the universal shampoo.

The raw material composition of the conditioner is as follows:

Aqua (85.2%)

Cetearyl Alcohol (5%)

Glycerin (4%)

Cetrimonium Chloride (3%)

Simmondsia Chinensis (Jojoba) Seed Oil (1%)

Aloe Barbadensis (Aloe) Leaf Juice (0.5%)

Panthenol (0.5%)

Dimethicone (0.5%)

DMDM Hydantoin (0.3%)

The product does not contain sodium chloride or other viscosity regulators. Additionally, this formulation is designed without the use of parabens. The conditioner's formulation ensures a product of low irritability and toxicity but with a high conditioning effect on the hair, as confirmed by in vitro analyses conducted by the Institute of General and Physical Chemistry in Belgrade, along with a comparative analysis with sample no. 2 on the market.

Table 3: Results of the Comparative Laboratory Analysis of the Universal Conditioner and Sample no. 2 on the Market

Sample	ZEIN test	RBC test	Refatting effect	Toxicity
Universal Conditioner	25	0,05	6,5 mg/g	125 mg/kg
Market Conditioner Premium	30	0,10	4,5 mg/g	118 mg/kg

The results indicate that after using the universal conditioner, the hair is well-nourished, and 1g of hair absorbed 6.5mg of active substances for nourishment. The best effects are achieved through the synergistic action with the shampoo and the addition of active substances.

Patent Claims:

The use of the product in the professional care of human hair and animal fur through the development of specific products for cleansing, improving the quality, and subsequent care of hair and fur, through a three-step process, as follows:

- a. Using the universal shampoo as claimed in patent claim 2. This preparation is rinsed out.
- b. Using the aqueous solution of active substances for improving the quality of hair and fur, which is added immediately after rinsing the shampoo. This preparation is not rinsed out.
- c. Using the universal conditioner as claimed in patent claim 3. This preparation is rinsed out.

The universal shampoo, as claimed in patent claim 2, characterized by the following formulation:

Aqua (54.3%),

Magnesium Laureth Sulfate, Disodium Laureth Sulfosuccinate (30%),

Disodium Cocoamphodiacetate (7%),
Cocamidopropyl Betaine (5%),
Coco-Glucoside and Glyceryl Oleate (1.5%),
Panthenol (0.5%),
PEG-7 Glyceryl Cocoate (0.5%),
Aloe Barbadensis (Aloe) Leaf Juice (0.3%),
DMDM Hydantoin (0.3%),
Simmondsia Chinensis (Jojoba) Seed Oil (0.5%),
Lavandula Angustifolia (Lavender) Oil (0.1%).

The universal shampoo, as claimed in patent claim 2, to be used according to the concept of use as described in patent claim 1.

The additive for improving the quality of hair and fur (volumizing hair and fur additive), characterized by the following composition:

Propylene Glycol (44.5%),
Aloe Vera Extract (50%),
Collagen in a soluble form (5%),
Traces of preservatives: Phenoxyethanol and Ethylhexylglycerin (0.5%).

The use of additives from patent claim 4 for improving the quality of hair and fur (volumizing hair and fur additive), to be used in accordance with the concept of use as described in patent claim 1.

The universal conditioner, characterized by the following formulation:

Aqua (85.2%),
Cetearyl Alcohol (5%),
Glycerin (4%),
Cetrimonium Chloride (3%),
Simmondsia Chinensis (Jojoba) Seed Oil (1%),
Aloe Barbadensis (Aloe) Leaf Juice (0.5%),
Panthenol (0.5%),

Dimethicone (0.5%),

DMDM Hydantoin (0.3%).

The universal conditioner, as claimed in patent claim 6, to be used according to the concept of use as described in patent claim 1.

Signature of the Applicant: Sasha Pavlovic Riess, Belgrade, June 6th, 2016.

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