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DEVELOPMENT OF PRODUCTS WITH HERBAL ISOLATES FOR CUTANEOUS APPLICATION

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When developing products with herbal isolates/herbal drug preparations, aside safety and efficacy demands, specific quality requirements should be satisfied, which is very complex due to compounded chemical composition of herbal isolates (among other tests, identification and quantification of appropriate substances and their stability should be assessed). Also, when these products are intended for cutaneous application, it is very important that they are aesthetically acceptable for users after usage and therefore, during development, special attention should be paid to their satisfactory sensory characteristics. As example of development of product with herbal drug preparations for cutaneous application, preformulation and formulation studies of *Usnea barbata* extract in alkyl polyglucoside-based emulsion potentially used for skin infections is presented. Preformulation studies of extract served to design two protocols for incorporating its three different concentrations into carrier, after which comprehensive assessment of colloidal structure, physical stability and biopharmaceutical characteristics of prototype formulation of final product was performed. Assessment of skin effects and safety of this product were obtained in *in vivo* measurements of biophysical parameters of skin using different experimental protocols. Same measurements were used in investigation of skin effects of other products with plant isolates (fatty seed oil and leaf extract of blueberry, *Vaccinium myrtillus*/fatty seed oil of hemp, *Cannabis sativa* and flower extract of immortelle, *Helichrysum italicum*), which were supplemented by sensory characteristics assessment. Obtained results indicated importance of appropriate vehicle/carrier selection and plant isolates incorporation method on their release/availability, as well as on colloidal structure, sensory properties and skin effects of final products.

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RAZVOJ PROIZVODA SA BILJNIM IZOLATIMA ZA PRIMENU NA KOŽI

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Prilikom razvoja proizvoda sa biljnim izolatima/preparatima biljnih droga, osim zahteva vezanih za bezbednost i efikasnost, neophodno je zadovoljiti i specifične zahteve vezane za kvalitet, koji su veoma složeni, s obzirom na kompleksan hemijski sastav biljnih izolata (potrebno je, između ostalog, izvršiti identifikaciju i kvantifikaciju odgovarajućih jedinjenja i pratiti njihovu stabilnost). Takođe, kada su ovi proizvodi namenjeni primeni na koži, naročito je važno da nakon aplikacije budu estetski prihvatljivi za korisnike, pa se prilikom razvoja posebna pažnja mora posvetiti njihovim zadovoljavajućim senzornim karakteristikama. Kao primer razvoja proizvoda sa preparatima biljnih droga za primenu na koži, biće prikazana preformulaciona i formulaciona istraživanja ekstrakta talusa lišaja *Usnea barbata* u emulzionom nosaču na bazi alkil poliglukozidnih emulgatora, kao proizvoda za potencijalnu primenu kod infekcija kože. Preformulaciona istraživanja ekstrakta poslužila su osmišljavanju dva načina inkorporiranja tri različite koncentracije ekstrakta u nosač, nakon čega je izvršena sveobuhvatna procena koloidne strukture, fizičke stabilnosti i biofarmaceutskih karakteristika prototipa formulacije finalnog proizvoda. Ispitivanje efekata na koži i bezbednosti primene ovog proizvoda dobijeni su u *in vivo* merenjima biofizičkih parametara kože u različitim eksperimentalnim protokolima. Ista merenja korišćena su i u istraživanjima efekata drugih razvijenih proizvoda sa biljnim izolatima (masno ulje semena i ekstrakt lista borovnice, *Vaccinium myrtillus*/masno ulje semena industrijske konoplje, *Cannabis sativa* i ekstrakt cvasti smilja, *Helichrysum italicum*), koja su upotpunjena procenom senzornih karakteristika. Dobijeni rezultati ukazali su na značaj odabira podloge/nosača i načina inkorporiranja biljnih izolata na njihovo oslobađanje/raspoloživost, kao i na koloidnu strukturu, senzorne osobine i efekte na koži finalnih proizvoda.

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