

On the water-soluble vehicle "SEROL"

By DR. L. ZAKARIAS,
former Assistant of the Institute for Colloid Research,
Frankfurt am Main (Germany).

(Reprint from Journal for Practical Colloid Chemistry and Biology.)

The vehicles which are in use up to the present time, such as greases, carbohydrates and lipoids, show, besides being unsatisfactory in other respects, the main disadvantage of exercising their action merely at the place where they contact the skin while the medicines retained at the medium and superior layers of the applied ointment, are continuously prevented from activity.

Taken individually, the vehicles may be classified for usefulness as follows:

Greases smear, and soil the clothing. They become more or less rancid. They are renitent to resorption, as they are not soluble in water and, owing to their high viscosity, cannot diffuse through living membranes.

Carbohydrates (Petrolatum), though not becoming rancid, have otherwise the same disadvantages as greases.

Lipoids (Eucerine, Lanoline, etc.) resorb some water and do not become rancid—but experience indicates that medicaments dissolved in Lipoids are brought to their full action also at the spot only where the ointment touches the skin.

The necessity more and more arose to find vehicles which would not present the disadvantages mentioned above. Soft and neutral soaps were tried as vehicles. They are, however, not very stable and not well adapted for use on many diseases, of the external skin, for instance acute eczema.

At the present time, the endeavor prevails to develop an ointment base which is soluble in water, absolutely neutral and which entirely dissolves the incorporated medicaments. It must be furthermore economical (for social reasons) and must not leave any residue, i. e., it must not produce a sensation of greasiness and stickiness. As a further requirement, the vehicle should have if possible the same osmotic pressure as blood serum so that it may not do more harm to the already affected or regenerating tissues by its anisotony and that a well-planned dosage and action may be achieved with its application.

According to today's standard of membrane research, the mentioned requirements are indispensable for applying chemics to the skin. Without citing all the very instructive literature, I merely wish to mention the work of Neergaard who has proved in exact tests that the efficacy of medicaments depends entirely on their condition of molecular dispersion or ionization: even the best disinfectants being in danger of becoming absolutely inefficient if presented in a less complete dispersion, for example in their colloid form.

Thus one can understand that colloid silver preparations being in inverse proportion to their degree of ionization, are used in a much stronger concentration than pure silver nitrate solutions, the latter being ionized by about 60%.

An ointment base fulfilling the needs of modern pharmacology is "SEROL".* "Serol" is water-soluble and may be used as a vehicle for almost every medicament. It is a hydrophile colloid of high water absorption. Many medicines may be molecular-dispersed in "Serol", being partly absorbed with the colloid particles, that means bound on the disperse phase, and partly dissolved in the dispersing medium (water). Due to this process of distribution, the "Serol" products continuously carry their effective medicaments to the ill parts of the skin or mucous membranes in almost the original concentration. This fact may be easily explained by the laws of the exchange of concentrations and of the absorption of colloid solutions.

I was also able to prove without any difficulty the correctness of this quality biologically, obtaining assured results when using for my personal tests, not the usual concentrates, but a stronger mixture of the medicaments. When applying a quantity of the stronger medication by means of one of the usual vehicles, I found that the medicine so presented did not exert more than a short-lasting sensation of pain—whereas, an equal quantity of the same medicine, when incorporated with "Serol", produced an irritation lasting for a longer time.

Particularly valuable Serol products are: Gono-Serol-cum-Argent. Nitric. 5%, Oxy-Serol, Coryza-Serol, Serol-cum-Chrysarobin 5%, Serol-cum-Hydrargyr. 30% for I. II. III. Lues, Serol Zinc Ointment, Serol-cum-Ichthyol, Patentex**, etc.

Conclusion: "Serol" is a modern, clean, water-soluble, economical vehicle which makes possible an effective ointment therapy, as the medicaments, being presented in a molecular dispersion or colloid solution, are brought to the affected parts of skin and mucous membranes in their original concentration.

* Makers Merz & Co., Chemical Works, Frankfort-on-Main (Germany), Vienna, Zurich.

** Makers Chem. Exportgesellschaft "Vauka" G. m. b. H., Eschersheimer Landstr. 53-55, Frankfort-on-Main (Germany) and Vauka Chemical Works, Inc., 345-49 Sixth Avenue, Newark, N. J., U. S. A.