

## 高效液相色谱法测定化妆品中的泛酸及D-泛醇

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## Simultaneous determination of pantothenic acid and D-panthenol in cosmetics by high performance liquid chromatography

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**摘要** 建立了对不同基质化妆品(膏霜、乳液、水剂化妆品、油剂化妆品、蜡基化妆品、指甲油等)中泛酸(维生素B5)及D-泛醇(维生素原B5)的富集方法及同时测定的高效液相色谱(HPLC)法。利用水和与水不互溶的有机溶剂组成的双液相体系,首先将泛酸及D-泛醇与化妆品中油溶性成分及表面活性剂等基质成分初步分离,然后用亚铁氰化钾-乙酸锌共沉淀剂去除提取液中的水溶性成分,继而在酸性条件下将泛酸和D-泛醇富集于C18固相萃取填料上,脱除其他水溶性干扰物后,用40%甲醇水溶液洗脱,用HPLC分离,紫外检测器检测,外标法定量。该方法在泛酸和D-泛醇的含量为0.1~10 µg/g范围内有很好的线性,线性相关系数分别为0.9989和0.9996。不同化妆品基质中目标成分的方法回收率均在90%以上。对泛酸及D-泛醇的检出限均为30 µg/g,定量限均为100 µg/g。实验表明该方法可用于化妆品中泛酸及D-泛醇的同时测定,结果准确可靠。

**关键词:** 高效液相色谱法 泛酸 D-泛醇 化妆品

**Abstract:** A high performance liquid chromatographic method (HPLC) and sample pretreatment method were developed for the simultaneous determination of pantothenic acid (vitamin B5) and D-panthenol (provitamin B5) in cosmetics with different matrices (including of creams, lotions, aqueous cosmetics, oily cosmetics, wax-based cosmetics, nail polish etc). A liquid-liquid extraction system composed of water and water-immiscible solvent was used to preliminarily separate the target components from other oil-soluble components and surfactants in cosmetics, then macromolecular water-soluble matrices in cosmetics were removed by coprecipitation with potassium ferrocyanide-zinc acetate precipitating agent, and then under acid condition, pantothenic acid and D-panthenol were enriched on a C18 solid-phase extraction sorbent. After the removal of other water-soluble impurities, target components were eluted by 40% methanol and then separated and quantitatively analyzed by high performance liquid chromatography with external standard method. Good linear relationship was achieved in the concentration range of 0.1~10 µg/g for pantothenic acid and D-panthenol. The linear correlation coefficients were separately 0.9989 and 0.9996. The average recoveries of the target components in cosmetics were more than 90%. Limit of detection of the method was 30 µg/g and the limit of quantification was 100 µg/g. This method can be used to simultaneously determine pantothenic acid and D-panthenol in cosmetics. The results are accurate and reliable.

**Keywords:** high performance liquid chromatography (HPLC) pantothenic acid D-panthenol cosmetic

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