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meso-四(3-氟-4-磺酸基苯基)卟啉的合成及微分分光光度法同时测定痕量铜锌

程介克,肖玲,张华山,张传铀

武汉大学化学系

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摘要 本文报道一种新的高灵敏度水溶性卟啉显色剂meso-四(3-氟-4-磺酸基苯基)卟啉的合成方法. 研究了该试剂与Cu(II)、Zn(II)的反应条件. 在PH6.4的HOAc-NaOAc缓冲介质中, Hg(II)催化下, 室温反应30min即完成. 采用四阶微分分光光度法可同时测定痕量Cu(II)、Zn(II). 表观微分摩尔吸光系数分别达8.13×10^5和1.59×10^6. 本方法灵敏度高, 选择性好, 可不用分离直接测定茶叶、血液等样品中痕量Cu(II)、Zn(II), 操作简便.

关键词 分光光度法 血液 卟吩 P 锌 水 铜 显色反应 微分法 有机氟化合物 茶叶 苯磺酸 P

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Synthesis of meso-tetra-(3-fluorophenyl-4-sulfonate) porphine and simultaneous determination of copper, Zinc with derivative spectrophotometry

CHENG JIEKE,XIAO LING,ZHANG HUASHAN,ZHANG CHUANYOU

Abstract Synthesis of a new highly sensitive water soluble color reagent meso-tetrakis(3-fluoro-4-sulfophenyl)porphine (I) is reported. In HOAc-NaOAc buffer at pH 6.4 and with a catalysis of mercury(II), the reaction of Cu(II)[or Zn(II)] with I was completed within 30 min at room temperature Simultaneous determination of copper(II) and zinc(II) can be performed with fourth-order derivative spectrophotometry. The apparent derivative molar absorption coefficients of copper(II) and zinc(II) complexes are 8.13 ?105 and 1.59 ?106 at 412 and 424 nm, resp. The sensitivity of the method is high and the selectivity is excellent. Trace amts. of copper(II) and zinc(II) in Chinese tea, human blood, and lake water were determine without preseparation. The method is simple and the results are satisfactory.

Key words SPECTROPHOTOMETRY BLOOD PORPHINE P ZINC WATER COPPER COLOR REACTION DIFFERENTIATION ORGANO FLUORINE COMPOUNDS TEA LEAVES BENZENESULFONIC ACID P

DOI:

通讯作者