

水杨酸或阿司匹林二茂钛(IV)配合物的抗氧化作用

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收稿日期 修回日期 网络版发布日期 接受日期

摘要 在无水苯中以二氯二环戊二烯基钛与乙酰水杨酸钠或水杨酸钠合成出二环戊二烯基二阿司匹林钛(IV)或二环戊二烯基二水杨酸钛(IV)配合物, 通过元素分析, IR, ^1H NMR, XPS等研究了它们的化学组成与结构, 证实配合物的组成式为 $\text{cp}\sim 2\text{Ti}(\text{Asp})\sim 2$ 和 $\text{cp}\sim 2\text{Ti}(\text{Sal})\sim 2$ ($\text{cp}=\eta^5\text{-C}\sim 5\text{H}\sim 5$, Asp=阿司匹林酸根, Sal=水杨酸根), Asp及Sal均以羧基氧原子以单齿形式与Ti(IV)配位。通过测定 $\text{cp}\sim 2\text{Ti}(\text{Asp})\sim 2$, $\text{cp}\sim 2\text{Ti}(\text{Sal})\sim 2$, $\text{cp}\sim 2\text{TiCl}\sim 2$, 阿司匹林(HAsp), 水杨酸(HSal), $\text{Ti}(\text{OH})\sim 2\cdot(\text{Asp})\sim 2$ 及 $\text{Ti}(\text{OH})\sim 2(\text{Sal})\sim 2$ 等七种化合物对超氧阴离子自由基($\text{O}\sim 2^{\cdot-}$)和羟自由基($\text{OH}\cdot$)的清除率, 发现金属Ti(IV)只有与茂基及Asp或Sal形成混合配体金属有机配合物时, 对上述两种自由基的清除才能产生“协同作用”。

关键词 [水杨酸](#) [阿司匹林](#) [钛络合物](#) [环戊二烯P](#) [金属茂络合物](#) [抗氧化作用](#) [元素分析](#) [质子磁共振谱法](#) [X射线光电子谱法](#)

分类号 [R91](#)

Antioxidative actions of salicylate or aspirin dicyclopentadienyl titanium (IV)

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Abstract Two complexes of dicyclopentadienyldiaspirin titanium (IV) and dicyclopentadienyl titanium (IV) disalicylate were synthesized by the reactions of dicyclopentadienyl titaniumdichloride with sodium acetyl salicylate or sodium salicylate in absolute benzene and characterized by elemental analysis, IR, ^1H NMR, XPS etc. The formulas of the complexes were established as $\text{cp}\sim 2\text{Ti}(\text{Asp})\sim 2$ and $\text{cp}\sim 2\text{Ti}(\text{Sal})\sim 2$ (in which $\text{cp}=\eta^5\text{-C}\sim 5\text{H}\sim 5$, Asp=acetyl salicylate ion, Sal=salicylate ion). Asp and Sal were coordinated to Ti (IV) via monodentate form. By the determination and the comparison of the elimination rates to supraoxide anion free radical ($\text{O}\sim 2^{\cdot-}$) and hydroxyl free radical ($\text{OH}\cdot$) of the seven compounds [$\text{cp}\sim 2\text{Ti}(\text{Asp})\sim 2$, $\text{cp}\sim 2\text{Ti}(\text{Sal})\sim 2$, $\text{cp}\sim 2\text{TiCl}\sim 2$, aspirin(HAsp), salicylic acid (HSal), $\text{Ti}(\text{OH})\sim 2(\text{Asp})\sim 2$ and $\text{Ti}(\text{OH})\sim 2(\text{Sal})\sim 2$], it was discovered that formation of the mixed ligand complexes from Asp (or Sal), cyclopentadienyl and Ti(IV) could produce the "synergistic action" for the elimination of the above radicals.

Key words [SALICYLIC ACID](#) [ASPIRIN](#) [TITANIUM COMPLEX](#) [CYCLOPENTADIENE P](#) [METALLOCENES](#) [ANTIOXYGENATION](#) [ELEMENTAL ANALYSIS](#) [PROTON MAGNETIC RESONANCE SPECTROMETRY](#) [X-RAY PHOTOELECTRON SPECTROMETRY](#)

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