



2023年第37期总412期

## 农牧业信息化专题

### 本期导读

#### ▶ 学术文献

1. 农业装备自动控制技术研究综述

#### ▶ 相关专利

1. 用于制造生物传感器的蛋白质与多酚的电交联方法
2. 由溶解度降低的酶生产的生物传感器及其生产和使用方法
3. 一种生物酶巯基化修饰方法及其修饰物
4. 测定镍离子的生物传感器
5. 生物传感器及其免疫测定方法

中国农业科学院农业信息研究所

联系人：王晶静

联系电话：010-82106769

邮箱：[agri@ckcect.cn](mailto:agri@ckcect.cn)

2023年9月11日

更多资讯 尽在农业专业知识服务系统：<http://agri.nais.net.cn/>

## 学术文献

### 1. 农业装备自动控制技术研究综述

**简介:** 随着信息与控制理论的发展, 自动化控制技术在农业装备领域广泛应用, 促进农业生产的智能化、现代化与规模化。运动控制和作业控制是智能农机自动控制技术的两大核心内容, 为无人农机在复杂环境下的高精度自主导航安全行驶和精准作业提供保障。速度控制与转向控制是智能农机运动控制的基础, 导航跟踪控制是智能农机运动控制的主要内容。本文阐述了智能农机速度控制与转向控制的研究进展, 总结归纳了基于几何模型、基于运动学模型和不依赖于模型的自动导航跟踪运动控制方法。然后, 着重分析了智能农机在耕、种、管、收等各环节的作业机构控制以及多机协同作业控制方法。最后, 指出构建更加精准的农机数学模型, 研究面向复杂场景的先进底盘运动控制技术, 发展人工智能与控制理论深度融合的农机控制技术以及提升农机农艺相结合的多机协同控制技术是未来智能农机自动控制技术的发展方向。

**来源:** 农业机械学报

**发布日期:** 2023-06-30

**全文链接:**

[http://agri.nais.net.cn/file1/M00/03/5E/Csgk0Y1S\\_2uAXXSFASiEnIWUdA740.pdf](http://agri.nais.net.cn/file1/M00/03/5E/Csgk0Y1S_2uAXXSFASiEnIWUdA740.pdf)

## 相关专利

### 1 . Method of electro-cross-linking a protein with a polyphenol for the manufacture of a biosensor (用于制造生物传感器的蛋白质与多酚的电交联方法)

**简介:** The present invention relates to a liquid composition comprising a protein, a polyphenol and a morphogen; to a solid composition comprising the cross-linked product of a protein and a polyphenol; to a biosensor and a biofuel cell comprising said solid composition bound to a surface of an electrochemical probe; to a process for the detection of an analyte with said biosensor; and to the use of a ferrocene as a morphogen in an electrodeposition process.

**来源:** 欧洲专利局;

**发布日期:** 2023-09-06

**全文链接:**

<http://agri.nais.net.cn/file1/M00/10/30/Csgk0GT8THGAF4DiAB1Jxo-27gk075.pdf>

### 2 . Biosensors produced from enzymes with reduced solubility and methods of production and use thereof (由溶解度降低的酶生产的生物传感器及其生产和使用方法)

**简介:** 公开了多用途生物传感器, 其包括已被修饰以降低其溶解度的酶; 多用途生物传感器用于检测流体生物样品中的分析物, 并且生物传感器在多次使用后也保持其酶活性。公开了包括多个生物传感器的多传感器阵列。还公开了生产和使用这些装置的方法。

更多资讯 尽在农业专业知识服务系统:<http://agri.nais.net.cn/>

来源: 美国专利商标局;

发布日期: 2023-08-22

全文链接:

<http://agri.nais.net.cn/file1/M00/03/5E/Csgk0Y1TAUCAaRnpABLbi4BFVBw689.pdf>

### 3. 一种生物酶巯基化修饰方法及其修饰物

简介: 本发明公开了一种生物酶巯基化修饰方法及其修饰物, 属于生物酶技术领域, 该生物酶巯基化修饰物由巯基供体与生物酶直接通过酰胺键偶联得到; 本发明还公开了一种生物酶巯基化修饰方法, 包括以下步骤: (1) 将巯基供体溶液加入至生物酶溶液中, 充分混匀, 再加入羧基活化剂反应; (2) 将反应液冻干后制备得到所述的生物酶巯基化修饰物。本发明所制得的生物酶巯基化修饰物相较于天然生物酶具有更高的巯基含量以及更好的金电极吸附作用, 可提升酶生物传感器的稳定性, 且引入的聚乙二醇链段作为一个分子量可调节的部位, 可以对酶进行不同分子量的巯基化修饰, 拓宽其应用范围。

来源: 国家知识产权局;

发布日期: 2023-08-18

全文链接:

<http://agri.nais.net.cn/file1/M00/10/30/Csgk0GT8TkyAPCEkAAuHtJxt-7I382.pdf>

### 4 . BIOSENSOR PENTRU DETERMINAREA IONILOR DE NICHEL (测定镍离子的生物传感器)

简介: Invenția se referă la un biosenzor folosit pentru determinarea rapidă și precisă în situ a ionilor de Ni din produse alimentare de origine vegetală, în scopul prevenirii apariției simptomelor de alergie la persoanele sensibilizate. Senzorul conform invenției este constituit dintr-o unitate potențiometrică și un electrod (1) de unică utilizare format dintr-un material (2) polimeric suport cu rol de izolator electric, niște electrozi (3, 4 și 5) metalici lamelari sau modificați cu nanoparticule de Ag, peste care se depune, ca agent (6) de fixare și imobilizare, o soluție apoasă de 1% alginat și ca material (7) biologic activ, o soluție de urează 0,1%, care are rol de legare a ionului de Ni din proba (8) alimentară analizată, corelarea dintre curentul faradic dat de unitatea potențiometrică și concentrația ionului de Ni realizându-se printr-o curbă de calibrare stabilită prin intermediul unei familii de curbe ciclo - voltametrice.

来源: 罗马尼亚专利和商标局;

发布日期: 2023-06-30

全文链接:

<http://agri.nais.net.cn/file1/M00/03/5E/Csgk0Y1TAvKABhaaABHzAzmaiVk745.pdf>

### 5 .One - pot biosensor and immunoassay method using the same (生物传感器及其免疫测定方法)

简介: Disclosed are a one-pot biosensor and an immunoassay method using the same. The one-pot biosensor includes a photocatalyst substrate deposited with metal nanoparticles; and a reaction pad which is disposed on an upper surface of the photocatalyst substrate and

更多资讯 尽在农业专业知识服务系统:<http://agri.nais.net.cn/>

includes a first binding material-fluorescent material complex specifically binding to a molecule to be detected, and the immunoassay method using the same. The one-pot biosensor may detect a target by once solution injection and has a size enough to be portable. Accordingly, since the one-pot biosensor can detect the target by only once solution injection without a washing step, because of a sensor platform capable of being easily used by an individual other than a diagnostic expert, it is predicted to be positioned as a means capable of confirming the health condition of the individual without seeing the doctor, such as a pregnancy diagnostic kit which has been currently commercialized.

来源: 美国专利商标局;

发布日期:2023-05-16

全文链接:

<http://agri.nais.net.cn/file1/M00/10/30/Csgk0GT8UCWAMTPZAA9L9ispcX8747.pdf>