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## Study on EGCG3"Me in Tea

Lv Haipeng, Lin Zhi, Tan Junfeng, Guo Li

(Key Laboratory of Tea Chemical Engineering, Ministry of Agriculture, Tea Research Institute, Chinese Academy of Agricultural Sciences, Hangzhou 310008, China)

**ABSTRACT** Effects on EGCG3"Me content in the tea with different leaf maturity, different picking time and different drying temperature were investigated by HPLC. The results indicated that the content of EGCG3"Me increased with the leaf maturity, it was reached to its highest level in the third or the fourth leaf generated; the maximum content was reached at noon. The content of EGCG3"Me maintained effectively when the drying temperature was kept at 90℃.

**Key words** tea, EGCG3"Me, content, drying temperature

行业  
动态

### 天冠乙醇生产高效循环水项目改造成功

天冠集团乙醇生产高效循环水项目污水深度治理工程已通过省市环保部门验收,标志着该集团节能减排工作迈上了新的台阶。

近年来,天冠集团走循环经济之路,把“节能减排”列为工作的重头戏。随着企业的扩大,生产乙醇的过程中,原有的冷却水处理装置及废水处理系统不能满足工艺要求。从2004年始,天冠集团先后投资9 000多万元,对现有循环水系统进行彻底改造,使工艺、设备、规模更加完善成熟,截止2008年9月,该工程已全面竣工。

技术改造中,通过引进新工艺,在高浓度乙醇一级厌氧处理系统的基础上,增添二级厌氧处理系统和好氧系统,对污水分级处理,使水质进一步净化。通过增添敞开式高温两级降温处理系统、电制冷降温装置及溴化锂冷水机组,使全厂冷却用水实现高、中、低3种水温的闭路循环,节能降耗,降低了乙醇生产的综合成本。

改造过程中,实施自主创新,解决了大量难题。如,自行设计污水降温塔,解决了污水水温过高工艺难以控制的难题。工艺连接过程中实行模块组合,当局部出现问题时,维修方便快捷。针对物料容易结晶引起管道堵塞的难点,增加了沉淀环节,减少故障发生。

项目正常运行后,全厂水资源重复利用率将从原来的45%提高到94.3%,节水50.91%,年减少污染物COD排放量547t,在达到深度治理的同时,厌氧处理生产的优质生物能沼气还可作燃料,每年新增沼气100多万立方米,实现了经济效益、社会效益双丰收(天冠集团李瑞 陈铁供稿)。

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## Design and Implementation of Laboratory Information Management System(LIMS) in CICC Laboratories

Yao Su, Li Hui, Li Jinxia, Cheng Chi

(China National Research Institute of Food & Fermentation Industries, Beijing 100027, China)

**ABSTRACT** According to the international advanced principle of LIMS and the working requirements of CICC, an idea of LIMS applied in Microorganism Resource Collection is proposed firstly. The principle design of LIMS, function framework and software condition are designed and implemented primarily. The LIMS is composed of seven subsystems as following, culture preservation management, culture sale management, culture quality control management, file management, resource management, information management and system management. Every independent subsystem has special function, and these procedures could be called mutually because of their more relevancy. CICC is the national industrial microorganism resource collection, and the appropriate LIMS will improve the work efficiency, enhance the capability of test data analysis and advance the information management level in CICC.

**Key words** LIMS, microorganism, culture resource, function framework

行业动态

### 纤维素乙醇结束生物燃料与粮食的“土地之争”

2008年,全球粮食价格一度持续上涨。而根据世界银行的报告,在导致粮价上涨的各种因素中,生物燃料的影响高达75%。如何解决两者之间的矛盾,现在美国科学家终于想出了办法。

美国韦伦纽姆公司找到一种非食用性有机原料,并将其转化成燃料。从而避免大量侵占农用耕地,种植甘蔗、玉米等提炼乙醇所需的植物原料,解决生物燃料与粮食之间的土地之争。

科研人员介绍说,他们目前仍使用蒸馏法提炼乙醇燃料,成本比较高,且每年的产量只能达到530万L。研发人员正在对该系统进行改善,希望3年后的产量达到供应商业市场的能力。此外,科学家指出,由于目前用非农作物转化生物燃料的技术仍不成熟,农作物仍是生产生物燃料的主要原料。如果能研发出更新的技术,把自然界丰富且不能食用的“废物”纤维素,包括秸秆、树枝和林业边角余料等转化为乙醇,那么将为世界生物燃料业的发展找到一条可行的道路。目前很多国家和许多大型能源公司都在竞相探索将纤维素转化为乙醇的技术。希望再有5年左右的时间,“纤维素乙醇”就能在市场上广泛使用。

# Study of Strains Screening and Fermentation Conditions for SCP Produce Using Citrus Byproducts

Zhao Lei, Zhang Keying, Ding Xuemei, Liu Yashi, Lv Gang

(Animal Nutrition Institute, Sichuan Agricultural University, Feed Engineering

Research Center of Sichuan Province, Ya an 625014, China)

**ABSTRACT** A series trials were conducted to identify the suitable microorganisms and fermentation conditions for using the by-products of citrus-processing industry to produce single cell protein(SCP). Compared the crude and the true protein content before and after fermentation, we inoculated single or combination microorganisms into the summer orange by-products. An orthogonal trial was used in the determination of optimal fermentation conditions include culture time, inoculate ratio of strains, inoculation concentration and water content with three levels. Ten different microorganisms were used in the study. The results showed that the suitable combination was *Candida utilis* (1807)-*Aspergillus niger* (2281)-*Trichoderma reesei* (56765). The water content and fermentation time showed significant impact on the protein content ( $P < 0.01$ ). The suitable conditions were: culture time 3~4d with 2:1:1 or 3:2:1 inoculated ratio of the 3 strains, 10% inoculated concentration, and 65% water content for the summer orange with the 3 times more CP content from 10% to 30% and true protein increased by 45% after fermentation.

**Key words** orange peels, single cell protein, candida, fungi, strains screening, fermentation conditions

行业  
动态

## 西藏青稞提取 $\beta$ -葡聚糖获得成功

由西藏自治区农科院农业研究所、西藏青稞研究与发展中心等科研单位共同研究合作的项目——“西藏青稞 $\beta$ -葡聚糖生理功效、提取利用技术及其功能食品开发研究”已通过西藏自治区科技厅的成果鉴定。专家指出,这是我国在世界上首次从青稞中提取 $\beta$ -葡聚糖获得成功,填补了国内青稞 $\beta$ -葡聚糖产业化开发的空白。

国内外 $\beta$ -葡聚糖提取来源主要有酵母、食用菌和燕麦等谷物,这次从青稞中提取 $\beta$ -葡聚糖并规模生产 $\beta$ -葡聚糖产品在国内外尚属首次。

$\beta$ -葡聚糖是一种重要的可溶性膳食纤维,具有降血脂、调节血糖、调节肠道和提高免疫力等保健功能。随着高血压、高血脂、肥胖、糖尿病等“现代文明病”的高发,膳食纤维 $\beta$ -葡聚糖的需求量日渐旺盛。

选用青稞中提取 $\beta$ -葡聚糖是因为西藏的青稞品种是世界上 $\beta$ -葡聚糖含量最高的大麦类群,西藏自治区农科院对75个西藏青稞品种和132个国内其他地方大麦品种的 $\beta$ -葡聚糖含量进行统一检测后发现,西藏青稞品种 $\beta$ -葡聚糖含量平均在5.25%,而国内其他地方的大麦品种 $\beta$ -葡聚糖含量平均仅3.91%,而国外公开发表的471个大麦品种按照同样方法测定 $\beta$ -葡聚糖含量平均在3.79%,这就证实了西藏青稞品种是世界上 $\beta$ -葡聚糖含量最高的大麦类群。

西藏自治区农科院农业研究所自1980年代开始对“高 $\beta$ -葡聚糖青稞育种”课题进行研究,2000年完成了青稞特有营养成分 $\beta$ -葡聚糖含量普查与开发利用分析,2001年育成了世界上含 $\beta$ -葡聚糖最高的麦类作物——“藏青25”青稞新品种,其 $\beta$ -葡聚糖含量高达8.62%。

西藏作为全球唯一大规模集中种植青稞的地区,种植面积占西藏农作物总数的60%。西藏粮食总产从1959年的15万t,增加到去年的93.86万t。由于青稞只能加工成糌粑或酿成青稞酒,每年有大量的青稞无法转化,致使广大农牧民增产不增收。仅2002年,西藏青稞消费剩余量高达6.2万t。青稞中提取 $\beta$ -葡聚糖获得成功对于提高青稞附加值、加快青稞产业化开发、增加西藏农牧民增收具有重要意义。

目前,依托西藏青稞研究与发展中心的成果,西藏圣伯力生物技术有限公司已投入上百万元资金生产出青稞 $\beta$ -葡聚糖胶囊、青稞速溶粉等产品。

- nation of low molecular weight polyphenolic constituents in grape (*Vitis vinifera* sp.) seed extracts; Correlation with antiradical activity[J]. Food Chemistry, 2005, 89: 1~9
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## The Antioxidant Capacity of Ultra-fine Powder of Grape Seeds under Conditions of *in vitro* Digestion

Li Hua, Li Peihong, Li Yong, Wang Xiaoyu

(College of Enology in Nwsuaf, Yangling, 712100, China)

**ABSTRACT** We used several different methods to determine the antioxidant capacity of ultra-fine powder of grape seeds after *in vitro* digestion. The antioxidant potential of the extract was assessed by performing different *in vitro* assays, such as the total content of phenolic and the procyanidins, CUPRAC, DPPH, ABTS + and OH radical scavenging capacities and peroxidation inhibiting activity. The results showed that the sample exhibited strong antioxidant activity. Dialyzing bag was used to simulate the gastrointestinal assimilation; much of strong active antioxidants permeated into the dialyzing bag by passive absorption.

**Key words** simulate gastrointestinal, antioxidant activity

行业动态

### 国家科技支撑农业领域食品加工技术及装备进展

国家科技支撑计划农业领域项目针对高效、节能、环境友好方向发展的共性关键技术与装备等瓶颈问题,通过自主创新 and 集成创新,研究并开发出了食品冷杀菌、高效节能干燥、连续真空冷冻干燥、大型船用急冷设备等 15 种食品加工重大关键技术和装备,全面提升了我国冷加工、食品包装以及薯类加工技术与装备等领域研究水平,迅速缩小我国在上述领域与欧美发达国家的差距,使我国成为少数几个可以制造食品冷加工、大型连续成套高技术设备的国家之一。

在玉米、薯类、肉类、果类、蛋类等与国计民生相关的大宗农产品的深度加工上取得重大突破和进展,开发了玉米化工醇、苹果果胶、马铃薯雪花全粉、蛋粉等量大面广的 101 个产品和 15 种新材料,并实现了金华火腿等传统肉制品的工业化生产,缩短了生产周期,提高了产品质量和生产效率。突破了玉米山梨醇氢解技术,首创了玉米化工醇工业化生产工艺;突破了淀粉回生老化制约,形成了大量大宗方便食品新产品;突破了马铃薯和甘薯干燥技术,推动了薯类地区资源优势向经济优势的转变。建立了试验基地 21 个、中试生产线 20 条、生产示范线 42 条,新增产值 21 亿元,新增利税 3.92 亿元。上述一系列重大关键技术的突破为提升食品产业核心竞争力、提高农业资源利用率和附加值、促进农业可持续发展、增加农民收入起到了重要的推动作用。

系统开展了功能性食品评价、有效成分检测和鉴别、功能因子高效分离与制备及其生物活性稳态化共性关键技术研究,进行了具有减肥、辅助降血脂、降血压、降血糖、抗氧化、调节异常代谢以及辅助改善老年记忆等功能的新产品研发与产业化示范。研究建立了黄酮类化合物等功能因子指纹图谱,突破了长期困扰我国功能食品行业发展中的瓶颈技术——功能性食品的真伪鉴别问题,极大地提高了功能性食品鉴定的可行性和可靠性;在功能性低聚糖与多糖、活性蛋白与多肽、功能性油脂、功能性色素与黄酮等功能因子的高效提取分离,功能因子绿色高效低成本生产和工业化规模的连续分离与制备等方面取得重大技术突破,为保健食品开发提供了技术保障。