

the beginning of growth. Isolate 35 has the highest growth rate, which is not inferior in this indicator to industrial strains from commercial preparations.

4. Isolates in the collection exhibit a different capacity for cellulose utilization. The best growth rate on the medium with cellulose was shown by isolate 22, which is not inferior to isolates from commercial preparations.

5. Wood, fruiting bodies of fungi, as well as soil are inhabited by fungi of the genus *Trichoderma*.

6. Some isolates from our collection are capable of synthesizing siderophores.

7. Many isolates are capable of inhibiting the growth of soil pathogens. Perhaps this is due to the fact that fungi of the genus *Trichoderma* are soil fungi. The pleasant result was that *Trichoderma* suppressed phytophthora well.

8. The growth of isolates at a temperature of 37 degrees Celsius shows the impossibility of using such isolates for the needs of crop production.

The main practical conclusion is the creation of a prototype of a commercially viable biological product that can be widely introduced into the practice of organic and conventional farming through its commercialization.

Reference

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毛发宏扫描全息分析系统

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Summary. *The existing disease diagnosis techniques are more or less harmful to the human body, so a simple and non-invasive disease screening technology is urgently needed. This paper introduces a hair scanning technique for the diagnosis of diseases.*

Anatomically, human scalp hair is divided into thalamic layer, cortex and medulla. The medulla is located in the center of the cortical fibers and can be missing, broken or continuous. Existing studies have found that the thalamic layer and cortex of hair have different functions and functions. However, the hair medulla is simply considered to be an irregular gap with many holes in the center of the hair, and the research on the function and function of the medulla is not satisfactory. It can be used as a diagnostic tool to study whether changes in the medulla structure of hair are related to some diseases. Scanning hair samples can

be used as a simple, cheap and non-invasive screening technique for the diagnosis of diseases, which has practical significance.

At present, the construction of hair scanning device, the collection and induction of hair data and the stitching of hair images have been completed. The specific contents of these three aspects of work will be introduced below.

The first is the construction of the hair scanning device, which includes four modules. The image acquisition module collects the microscopic image of the hair from the microscope by using a digital camera and saves the microscopic image; the transmission module, a mechanical device, is used to control the movement and straightening of the hair under the microscope, which is easy to focus and take a complete microscopic image of the hair. Include a hair tension unit (for straightening the hair, convenient for digital camera focus and microscopic image acquisition), a hair movement unit (for automatically moving the hair and taking continuous hair microscopic images), and a hardware control module for controlling the work of the transmission device and digital camera. The image analysis module is used to process and analyze the microscopic image of the hair collected by the image acquisition module, and obtain the data information such as the length of the hair pith, and obtain a complete microscopic image of a hair through the image mosaic technology.

Then there is the collection and induction of hair data. at present, 133 groups of hair images of cancer patients and 43 groups of healthy people have been collected, and the hair image data are numbered, and an information index table is established according to the number. record the age, disease, hair length and other basic information of the person to which the hair belongs.

The last part is the stitching work of the hair, which adopts the following stitching algorithm: first, the background of the hair is changed to white by logical operation, and the background of the hair image is separated; second, the pixel points of the hair image are searched, and the hair is fixed at the same horizontal line by clipping. Thirdly, the three-channel hair image channel is divided into three single-channel hair images. The three-channel R-MagneGMagneB three-channel image is weighted fused, and the three-channel image after fusion is fused to get the mosaic image.

To explore the feasibility of diagnosing immune diseases through hair: with the continuous development and progress of information technology, how to use these techniques to help patients or doctors make preliminary diagnosis quickly and efficiently has become a hot topic. This project provides a new method for disease screening and diagnosis by exploring the correlation between hair medulla structure and disease.

Simple, non-invasive disease screening method: scanning hair samples is simple, cheap and non-invasive, which not only facilitates diagnosis and treatment, but also promotes the work efficiency of doctors, which is of positive significance to disease diagnosis.

The hair microscope macro-scanning system has been basically built: the hair micro-scanning system can automatically and quickly collect complete hair

microscopic images. The built hair scanning device can be used to collect the microscopic images of each segment of the hair. By stitching the segmented hair images, a complete and non-repetitive microscopic image of the whole hair can be formed.

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**CORPORATE MARKETING STRATEGY –
MEDICAL DEVICE DIRECTION**

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***Summary.** This thesis focuses on the marketing strategy of medical device enterprises, in-depth analysis of the current market situation and development trend of the medical device industry, through the discussion of marketing strategy, to provide medical device enterprises with marketing strategy plan suggestions. The first part describes the background, the current situation of the medical device market, and the marketing strategy of the enterprise, and the middle part describes the characteristics of the marketing strategy of the medical device enterprise, the offline promotional strategy as well as the online promotion and sales. Finally, brand building strategy and the importance of online marketing and conclusion are introduced.*

当今医疗行业市场在大背景下医疗器械企业需要采取有效的营销策略来提升市场份额和竞争力。医疗器械其市场规模庞大且增长迅速。根据世界卫生组织的数据，全球医疗器械市场规模在近年来保持着稳定增长的趋势。预计到2026年，全球医疗器械市场规模将达到1.5万亿美元。随着人口老龄化程度的加剧、医疗技术的进步、人们对健康的关注程度不断提高，医疗器械市场的发展潜力巨大。然而，同时也面临着许多挑战和竞争。由于技术的进步和市场需求的不断变化，医疗器械市场的竞争日益激烈。各个企业都在努力提高产品的创新性、功能性和质量，以满足消费者对于高效、安全和便捷的医疗器械的需求。

医疗器械市场的现状呈现出持续快速增长的态势。随着人口老龄化、疾病发病率上升以及医疗技术的不断进步，对医疗器械的需求不断增加。同时，医疗健康产业的发展也促使了医疗器械市场的扩大。在市场结构方面，医疗器械市场呈现出多层次、多领域的特点，包括高端医疗器械、中端医疗器械和普通医疗器械等。

企业营销策略对企业的发展具有重要影响。首先，营销策略能够帮助企业识别市场需求并将其转化为市场机会，从而满足不断变化的市场环境，提高企业的市场竞争力。其次，营销策略能够帮助企业树立品牌形象，增