

Preliminary study on the education reform of fermented food processing technology course under the applied talent training mode

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Abstract: Fermentation is an important course for food majors. This course is theoretical and actual, and its education effect directly affects students' employment in the field of fermented food. Work-study combination and school-enterprise cooperation are the main features of higher vocational education. In order to cultivate innovative and entrepreneurial talents to meet the requirements of food industry develop and achieve the goal of talent training, the education content, education methods, assessment methods and innovative and entrepreneurial ability training of fermented food processing technology course were explored. In order to better adapt to the develop of applied schools, the education reform of fermented food processing technology course was discussed from the aspects of education methods, education contents and assessment forms. Innovating information education and implementing the information education mode of "multi-party real-time interaction" have achieved good education results, which can be used for reference in the cultivation of high-quality skilled talents in higher vocational colleges.

1. Introduction

"Fermented food processing technology" is a professional core course for food biotechnology majors. It involves a wide range of knowledge and requires mastering actual skills in the processing of fermented food production raw materials, fermentation process control and quality management. Strong actuality and applicability [1]. The theory covers a wide range, integrates multidisciplinary knowledge, and interacts with practice. The content is complex, including not only the processing principles of various foods, but also the processing techniques of various foods. It is an effective way to cultivate food talents with innovative and entrepreneurial capabilities. Cultivating high-quality technical and technical talents needed by enterprises is the talent training goal of higher vocational colleges. The major of food processing technology is a systematic and highly operable major. In education, not only should we pay attention to the learning of basic-level theory, but in the course of education, due to time and space constraints, students are not aware of the production equipment and work of enterprises. The process and operation procedures cannot be observed and learned at any time, and the part-time teachers of enterprises cannot provide technical guidance and services to students in a timely manner [2]. In order to cultivate high-quality innovative talents and technical and technical talents, this course has made preliminary explorations in education content and education methods under the circumstance that the current theoretical education hours are constantly shortened.

2. Curriculum reform

2.1. Education contents

As the main foothold of talent training, education content has become the focus of education reform. The optimization of education content is discussed from two aspects: textbook selection and education content optimization. The education content is diverse and lagging behind. Fermented food processing technology is a comprehensive course involving microbiology, biochemistry and other disciplines. Its education content and application areas are wide, but the class hours are limited. Under the influence of traditional education concepts, teachers teach more theoretical

knowledge and less actual content in actual education, resulting in a disconnect between theoretical content and actual content [3]. Fermentation industry is the main carrier of education knowledge, and its textbook update speed lags behind the develop of fermentation industry. The purpose is to enable students to have a comprehensive understanding and understanding of the entire fermented food production process through the operation training and practice of each link of the experiment, not only to cultivate actual skills, but also to improve the ability to combine theory and practice, so that it can meet the application of our school. The goal of training talents [4]. Taking learners as the center, focusing on education design, selectively virtualizing and digitizing various materials to form digital education information resources in various forms including online courses, virtual simulation training platforms, animations, and education videos. Students can learn independently on their mobile phones anytime, anywhere, and they can learn repeatedly for key and difficult points, breaking through the time and space limitations of learning. The construction of information-based education resources is shown in Figure 1.

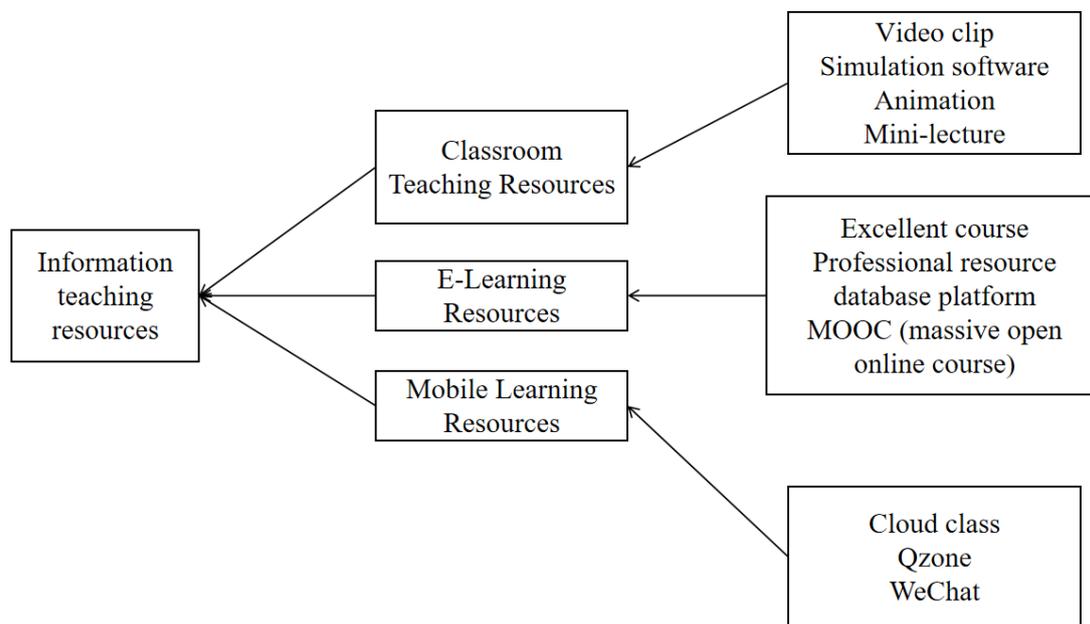


Figure 1 Information-based education resources construction

Since the 21st century, the domestic fermented food processing industry has developed rapidly, and some products have been industrialized, including soy sauce, vinegar, rice wine, and other products, and have given birth to many food brands, such as sea, etc., but there are still many fermented products. Small food processing workshops, developing towards fine and industrialization, including lobster sauce, fermented bean curd, etc. The existing problems are analyzed as follows: First, the security is poor. On the one hand, adjust and reconstruct the education content to highlight the key points of classroom education; the education content of "Fermented Food Processing Technology" involves many courses such as "Food Microbiology". In the education process, attention should be paid to the connection between related disciplines. To scientific integration. Repeated content in other courses can be skipped, focusing on the difference between fermentation engineering knowledge and other courses. For the repetition of this part of the content, it can also be further strengthened and expanded through the content introduction link of the new chapter or in the fermentation experiment.

2.2. Reform of Education Content of Food Processing Course

The theoretical education focuses on the education of theoretical knowledge such as the basic principles of fermentation and technological conditions, and the experimental education focuses on the preparation process of fermentation products, which leads to the close connection between the theoretical education content and the experimental education content. Through the explanation of typical fermented food production process, students can systematically and completely understand

and master the whole process of fermentation process [5]. At the same time, track the latest scientific research achievements and process equipment improvements at home and abroad, timely supplement the theoretical knowledge related to food fermentation, and constantly enrich and update the education content, so that students can keep up with the pace of the times and master the basic knowledge of fermentation engineering within the limited class hours. . In recent years, many enterprises have made innovations in fermented food processing technology, but due to the pure pursuit of efficiency and yield, the traditional delicious flavor has been lost, and the effect is counterproductive [6]. In response to the above problems, new technologies can be used to optimize and improve. In the experimental education, try to arrange products and processes that conform to the actual life of the major and students, such as pickles, yogurt, beer, sweet wine brewing, etc. In addition, according to the needs of professional positions, the curriculum education objectives are formulated. Teachers conduct in-depth corporate research, grasp the develop prospects of the industry and the market's demand for talent training, and revise curriculum standards and talent training goals, so that students have the corresponding professional core strength and work adaptability.

3. Case education method

3.1. Improve education methods

The traditional evaluation procedures in the practice education link do not combine social employment to achieve order training, and the experimental class submits the experimental report to complete the task. Lack of initiative in learning, weak self-learning ability, not good at using knowledge flexibly to analyze and solve actual problems, generally lack of innovative spirit and actual ability [7]. In view of the current situation of passive learning of poor students in colleges and universities, the team has a strong sense of teamwork, and adopts the learning mode of "clarifying goals, assigning homework, rational division of labor, scientific design, cooperative learning, and achieving goals-report summary, teacher evaluation" to promote college students' sense of teamwork There is no difficulty in the theoretical knowledge chapter of the fermentation engineering part, and it can play a good education effect [8].The case education method is a education method in which teachers carefully select and design relevant cases according to the requirements of the syllabus, education objects and content, organize and guide students to analyze and discuss specific cases, and propose and solve problems. In the case education method, students participate in the analysis and discussion of cases, which greatly arouses their enthusiasm and interest in learning, and further deepens their understanding and mastery of relevant knowledge. New assessment method. This course adopts a comprehensive evaluation method combining process evaluation and result evaluation. Innovate the assessment mode, increase the proportion of process assessment, and focus on the cultivation of students' learning ability and attitude.

3.2. Reform of actual training education mode

Comprehensive actual training course refers to an independent set-up course that conducts comprehensive actual training for professional (occupational) core knowledge, skills and vocational key abilities under the framework of talent training specifications according to the training objectives proposed in the talent training plan. According to the "school-enterprise dual main body" talent training model, the school-enterprise cooperation should build a relatively complete experimental training base inside and outside the school based on the principle of mutual benefit and win-win for both the school and the enterprise [9]. Build a education resource library for fermented food processing technology and other majors with brother colleges and universities, and share and use the high-quality education resources of each college on a unified platform. While doing a good job in classroom education, give full play to the role of the second classroom, and realize the integration of education and practice by allowing students to practice in education and learning, and continuously apply learning theory to practice. The latest professional science and technology trends at home and abroad are integrated into the education process to continuously

improve students' awareness and understanding of professional new technology and maintain the advanced nature of food technology education content [10]. By simulating the actual factory structure, operation, management, R&D, procurement, production and market analysis, students can use the knowledge and skills of the professional basic courses learned in the previous 3 years to complete the training tasks, and learn to deal with them from the training process. Emergency situation, learn teamwork, stimulate students' innovative spirit, cultivate students' entrepreneurial spirit and market awareness.

Table 1 Analysis of professional positions and professional core competence of food processing technology specialty

Occupation post	Professional core competence
Buyer	<ol style="list-style-type: none"> 1. Have the ability to recognize, identify and judge the quality of food raw materials. 2. Have supplier audit skills. 3. Be familiar with the basic procurement process 4. Familiar with HACCP system 5. Proficiency in office software such as NS office
Food production and processing	<ol style="list-style-type: none"> 1. Be able to operate the main production processes. 2. Be able to operate the key equipment on the production line
Food production management	<ol style="list-style-type: none"> 1. Master the food production technology. 2. Be able to organize the smooth implementation of safe production: skilled and modern production management mode. 3. Proficient in HACCP. QS and 5S basic knowledge 4. Have strong planning and organizational skills, communication skills, organizational skills, ability to analyze and solve problems, and strong language skills.
Food technologist	<ol style="list-style-type: none"> 1. Have the ability of standard post operation. 2. Ability to assist in product research and develop. 3. Have the ability of literature inquiry and retrieval. 4. Have the ability of text editing.
Quality control QC	<ol style="list-style-type: none"> 1. Be familiar with the quality control process. 2. Be able to master on-site production process and product quality requirements. 3. Be able to master product array control items and corresponding standards. 4. Have the ability of literature inquiry and retrieval. 5. Have the ability to find, analyze and solve problems. 6. Have strong communication skills.
Flat QA	<ol style="list-style-type: none"> 1. Have the ability to analyze the art, and be able to improve the quality according to the demand. 2. Be able to process and judge unqualified products. 3. Be able to assist in analyzing, handling and solving customer quality problems, meet the quality requirements of internal and external customers, and continuously improve product quality satisfaction. 4. Be able to analyze the reasons for the failure of final products and process products, and put forward improvement plans. 5. Have the ability of literature inquiry and retrieval. 6. Have the ability to find, analyze and solve problems. 7. Have strong coordination and communication skills.
Storage management	<ol style="list-style-type: none"> 1. Master the basic principles of raw materials and finished products storage; 2. Be able to carry out basic management of raw materials and finished products storage; 3. Master the storage and transportation modes and condition control of various foods.

4. Conclusions

The process of food fermentation involves a wide range of knowledge, covering many new technologies in the field of food. The construction of this course is related to the quality of personnel training for food science and engineering. With the develop of economy, people's demand for food is increasing. At the same time, with the rapid develop of fermentation engineering technology, how to keep up with the pace of scientific and technological develop and cultivate high-quality food professionals with both theoretical and actual abilities is an urgent subject for food teachers to study. This paper makes some attempts in the universality of education knowledge, the flexibility of education methods and the diversification of assessment methods, which can be used for reference by other higher vocational colleges. The analysis shows that it is feasible to improve the traditional fermentation process by using biological knowledge and biotechnology. With the further develop of biotechnology, fermentation technology will play a role in more fields and benefit mankind.

References

- [1] Feng Chong, Yu Meiyan, Wang Fang, et al. Research on the cultivation of applied undergraduate food professionals under the background of "innovation and innovation" [J]. *Agricultural Products Processing*, 2019(16):3.
- [2] Han Zongyuan, Li Xiaojing, Shao Yu, et al. Exploration and Research on the Course Reform of "Food Engineering Principles" Based on the Training Mode of Applied Talents [J]. *Agricultural Products Processing*, 2020(12):3.
- [3] Hou Lili. Exploration on classroom education reform of applied undergraduate bakery food processing technology [J]. *Modern Food*, 2019(20):2.
- [4] Cheng Wangkai, Cao Kan, Xu Yueming. Exploration and practice of informatization education of "fermented food production technology" course based on school-enterprise cooperation [J]. *Agricultural Products Processing*, 2018(3):3.
- [5] Guo Ting, Chen Zhenlin, Duan Zhenhua, et al. Discussion on the education reform method of "food processing comprehensive training" in applied undergraduate colleges [J]. *Agricultural Products Processing: Part II*, 2018(11):3.
- [6] Peng Xue, Xue Youlin, Zhu Rugang, et al. Reform and exploration of "food technology experiment" under the training mode of applied talents [J]. *Agricultural Products Processing*, 2019(6):2.
- [7] Zhang Zhengmao. A preliminary study on the application of case-based education in "\"food technology\"" course education [J]. *Agricultural Products Processing·Innovative Edition*, 2019, 000(006):97-99.
- [8] Zhang Jiayan, Dong Ying. Education practice and innovation of elective courses in colleges and universities in the new era: Taking the course of "food separation and recombination technology" as an example [J]. *Agricultural Products Processing*, 2019(22):3.
- [9] Zhang Zhengmao. A preliminary study on the application of case-based education in the education of "Food Technology" [J]. *Agricultural Products Processing*, 2019(12):3.
- [10] Yang Junjie, Zhu Guilian, Guo Na, et al. Exploration on the education reform of "Food Engineering Principles" based on the cultivation of applied undergraduate talents [J]. *Agricultural Products Processing*, 2021(16):3.