1, What kind of problems from the laboratory to the factory need to pay attention to

(1) The main consideration is the scientific research value and practical economic value, the application value includes the profitability level of the product, the competitiveness and feasibility with similar products. Products need to have quality, innovation, such as significant advantages in purity; also need to have a lower controllable cost; for the optimization of substrates and other media, need to be safe and not difficult to find raw materials. Besides, bacteria need to tolerate the substrate.

(2) Fermentation process

Select strains with high production capacity and low requirements for equipment (strain performance: a formula that can be produced stably)

Fermentation engineering process optimization through small trials (pre-experiments, to determine the basic formula model)

Purification engineering fermentation validation center (to ensure the safety of fermentation products)

Company-designed platform Biotransformation platform:

5L - 50-100L - 12-20cubic pilot plant (impact of medium-sized scale-up, equipment validation) - plant line (200 cubic meters)

(3) Cost evaluation

For cost evaluation, pricing rights and overall costs are considered first. When calculating the cost, it is necessary to consider the cost of raw materials, as well as the whole fermentation cycle, because it is necessary to consider mixing, wind power consumption, and also steam and electricity consumption during sterilization. Also the cost of labor, the depreciation rate of equipment and plant settings need to be considered, the general plant needs to be renovated in 10-15 years

(4) Determine the price reduction can promote the promotion

The promotion of new uses through price reduction does exist, and innovative products will be supported by tax policies

2、How can your company ensure the safety of products in the production process of microbial produced drugs and food additives?

To ensure product safety, first of all, the product must meet the compliance requirements, and must pass the production license, GMP, FSSC22000, HALAL and other quality certification, and the production process to ensure the implementation of the process, raw materials meet the requirements, etc.

3、Does your company encounter any difficulties in promoting microbial products? For example, people have prejudice against microbial production. If so, how does your company deal with it? If not, how do you think we can break this barrier of prejudice?

We are doing high value-added products with innovation and high value, and we familiarize the market with this aspect from innovation during the pre-promotion, so generally the market comes to us and there are no promotion difficulties.

4、Carbon neutrality is an issue that the country has been paying more attention to recently. In the production process, what is the approximate ratio of electrical energy consumption to the cost of the factory? How does your company reduce carbon emissions, or reduce energy costs?

Low-carbon and efficient production is the trend, so now all promote the green and natural process, also vigorously promote the coal to gas, electricity, cooling and steam accounted for about 30% of the cost.

5. The substance we are going to produce is called nootkatone, and valencene is its precursor. However, by reading the literature, we found that when the intracellular fermentation in a large tank, the production of varenicline was high, but the nootkatone could not be detected. The literature speculates that this is because varenicline is organic and evaporates when it is produced and cannot be converted into nootkatone by enzymes in time. So from your point of view, where would you start to solve this problem?

I'm not too familiar with the Nootkatone here, first of all, we have to confirm that the strain is a high-yielding bacteria, under this premise to ensure that the process has to be accurately controlled

6、If possible, may I ask your company's products in the production process of the separation and purification of the cost of the approximate proportion of the total cost, if not convenient, you can also answer the proportion is not large.

The cost of separation and purification and wastewater treatment depends on the process and generally accounts for between 35-45%.