

THE UNIVERSITY OF PLOVDIV – BULGARIA



THE BIO-PHARM HI-TECH PARK

A Prospect for Establishment and Management
Operations of THE BIO-PHARM HI-TECH PARK
for development of BIOECONOMY in Bulgaria

www.technocentre.uni-plovdiv.net

PARAMETERS OF THE MODEL

THREE PILLARS OF THE INVESTMENT

- Industry 4.0
- Digital Economy
- Bio Economy (Circular Economy)

NATURE OF THE INVESTMENT

- High Technology Park BIO-PHARM-TECH
- Unique Industry Infrastructure of 3G Bio Technologies
- Turn-Key Investment



FUNCTIONAL CHARACTERISTICS

- Use of Renewable Resources
- Possibilities for Tests and Experimental Production
- Innovative Biotech Products & Technologies

HIGH PROFILE BUSINESS-TO-BUSINESS

- Industry-Scaled Bio-Pharm-Tech Models
- New Generation of Bio-Pharm Products & Technologies
- Bioeconomy-Centered Business Driver

TARGET

- Health Status of Men, Women and Children of All Ages

SUSTAINABILITY OF THE MODEL

- Revitalize the Bio Industries in the Region of South-East Europe (SEE)
- Introduce Bio Tech Business Horizons both to Large and Small- and Mediumsize Enterprises (SMEs)
- Promote Re-industrialization based on Bio Economy



INDUSTRIAL INFRASTRUCTURE OF THE PARK

➔ BIO-ENGINEERING AND ENZYME TECHNOLOGIES

- This unit of the Park will have the full spectrum of technological equipment for conducting industrial experiments and production of innovative products: enzymes, biopolymers, bioactive substances – bactericides, antioxidants, prebiotics and symbiotics

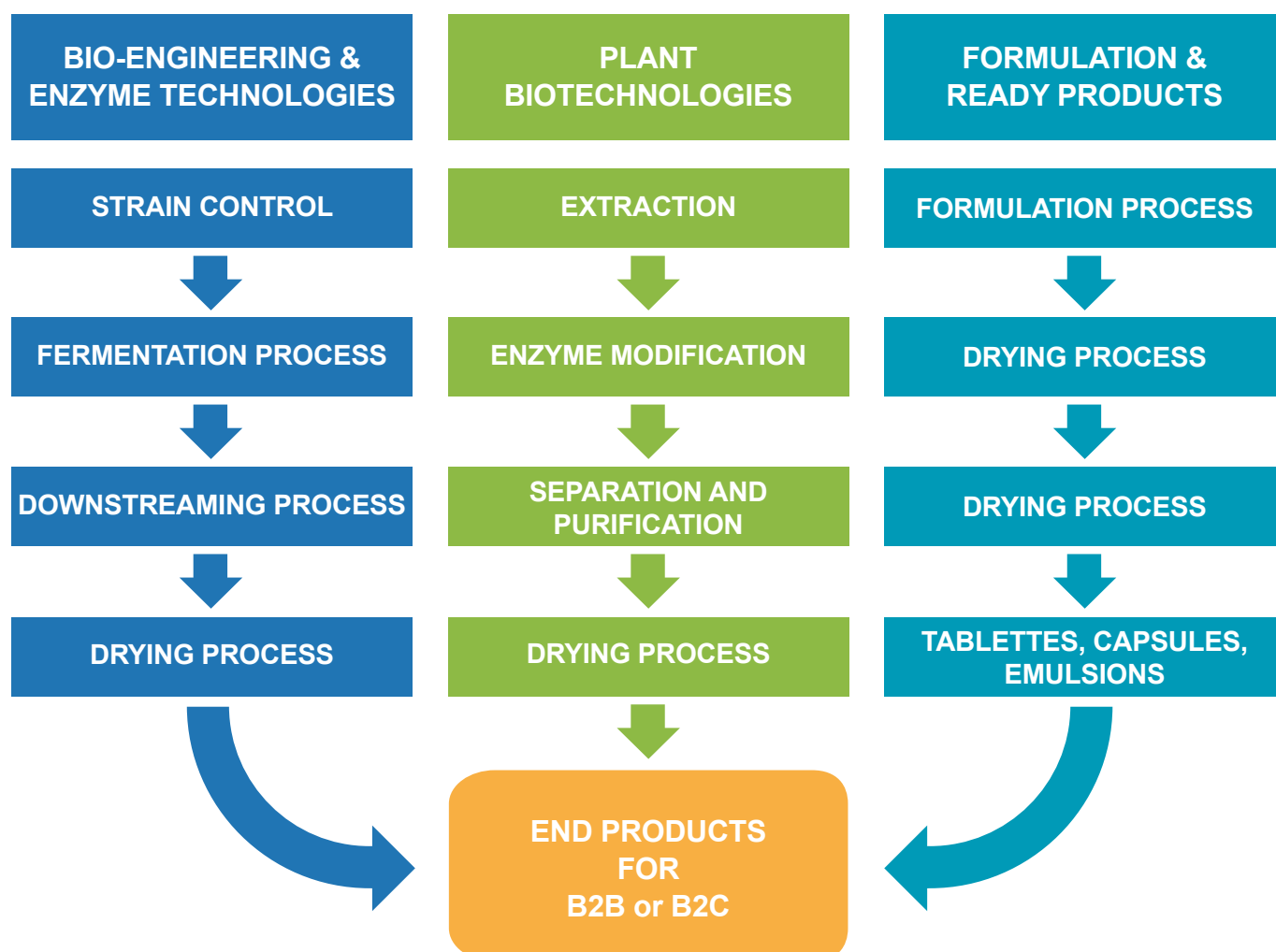
➔ PLANT BIO-TECHNOLOGIES

- This unit of the Park will have a production line for creating bio-active substances based on herbal plants of Bulgarian flora

➔ FORMULATION AND READY HIGH-END PRODUCTS

- This unit of the Park will have modifiable production line for production of different types of end products: tablets, capsules, creams, unguents and lotions

TECHNOLOGICAL PROCESSES



INVESTMENT CHARACTERISTICS

Investment (in EUR)	€ 50 000 000
Land (in m ²) Contribution by the University of Plovdiv	5 000 m ²
Human Capital Contribution by the University of Plovdiv	Subject to Market Needs
Buildings (in m ²)	7 500 m ²
Period to Complete the Buildings and Start Operating Procedures	2 Years
Business Period of the Project	18 Years
Period to Return the Investment (Years to Break-Even)	8 Years
Period of Profitable Years	10 Years
Profit Returns on Profitable Years (per annum)	12 – 15%
SYNTHETIC FINANCIAL INDICATORS	
✓ Net Present Value (NPV) ✓ Extreme Net Present Value (xNPV)	Subject to further disclosure
✓ Internal Rate of Return (IRR) ✓ Modified Internal Rate of Return (mIRR) ✓ Extreme Internal Rate of Return (xIRR)	Subject to further disclosure

PANELS OF THE INVESTMENT FOR FINANCING

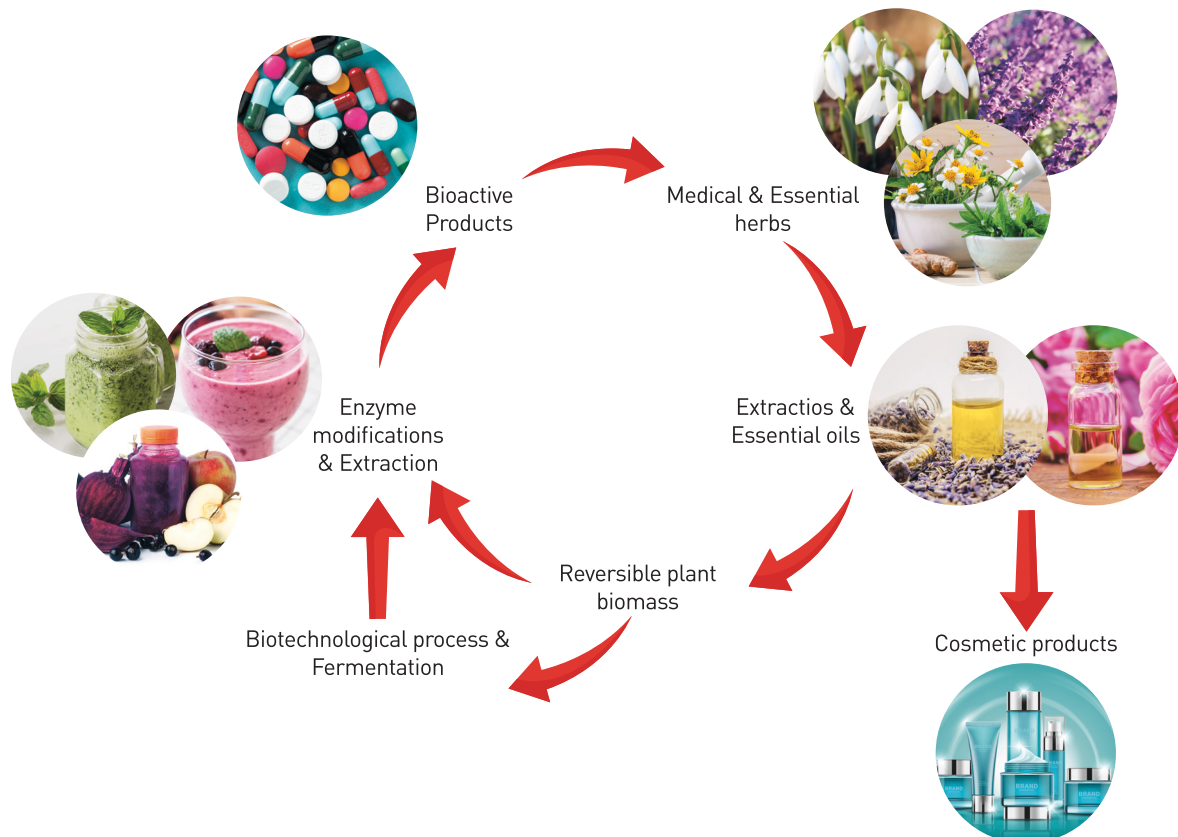
- Financing of Construction of a Building with Special Conditions for Bio Technological and Pharma Production Processes
- Financing Construction and Equipment of Production & Laboratory Sectors
- Financing the Upgrade, Installation, and Re-programming of Available Equipment
- Financing of Projects, Technologies, Permissions, Procedures, Fees, Author Supervisory, Control & Management of the Project, and Reserves



INVESTMENT PANELS BY FUNCTIONS

Sector-A (in EUR) Laboratories for Servicing the Production Complex	€ 500 000
Sector-B (in EUR) Pilot Installation for Bio Technology Processes	€ 16 000 000
Sector-C (in EUR) Pilot Installation for Retrieval of Bio-Active Substances from Plant Sources	€ 6 000 000
Sector-D (in EUR) Pilot Installation for Formulation of Bio-Active Components	€ 12 000 000
Total by Sectors: A, B, C, and D	€ 34 500 000
Investment Panel E (in EUR) Various costs related to ongoing construction & equipment	€ 10 500 000
Investment Panel F (in EUR) All Projects, Fees, Controlling, Permissions, and other Technical and Mandatory Fees from Start-to-Turn-Key Phase	€ 5 000 000
Total by Components: E, F	€ 15 500 000
TOTAL	€ 50 000 000

BIOTECHNOLOGY PROCESSES & BIOECONOMICS IN BULGARIA



HIGH-END PRODUCTS BASED ON 3RD GENERATION BIO-TECHNOLOGIES

FIRST GROUP OF PRODUCTS

- Anti-Oxidants
- Immune-Stimulators

SECOND GROUP OF PRODUCTS

- Enzymes
- Biologically Active Substances (BAS)

THIRD GROUP OF PRODUCTS

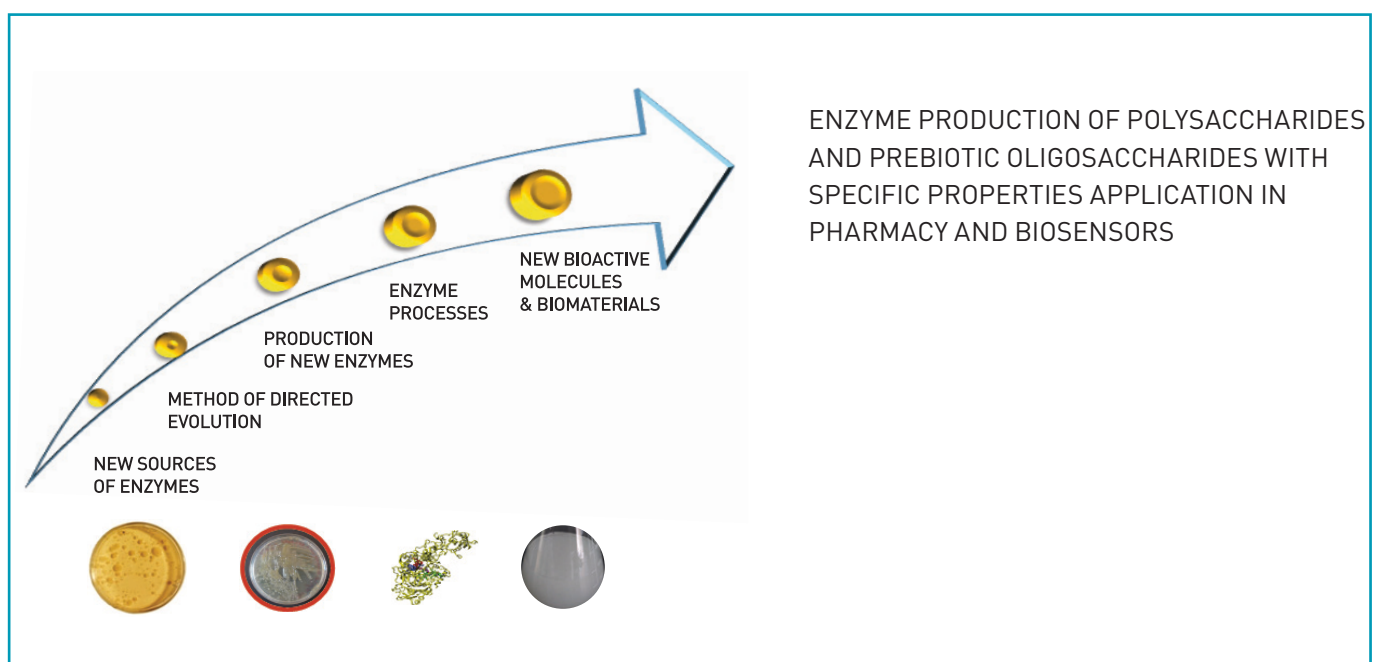
- Note: These are Products of 3-rd Generation Bio Technologies, which products are retrieved as a result of lactic-acid fermentation

FOURTH GROUP OF PRODUCTS (DEEMED TO REGULATE THE MICROBIOMA)

- Plant Oligosaccharides
- Probiotics
- Polyphenols

OVERALL HIGH-END PRODUCTS IMPACT

- ➔ For Prevention and Bio-chemic Impact for Improving Human Health and Quality of Life
- ➔ The Products from All 4 Groups are Directed towards Personalized Bio-Pharm Solutions and Impact on:
 - Metabolic Syndrome
 - Diabetes – Type-II
 - Cardiovascular Diseases
 - Dysbiosis of Human Microbiota



INDUSTRY IMPACT & BENEFITS FOR HEALTH

This Prospect for establishment and management operations of the BIO-PHARM-TECH PARK is deemed to develop Bioeconomy based on the leading industrial sectors of Bulgaria:

1. Cosmetics and Perfumery Industry – based on essential oil plants, grown in Bulgaria;
2. Dairy Industry – based on Bulgarian strains of lactic acid bacteria;
3. Biotechnology Industry of enzyme preparations and antibiotics;
4. Pharmaceutical Industry – based on medical plants of the Bulgarian flora.

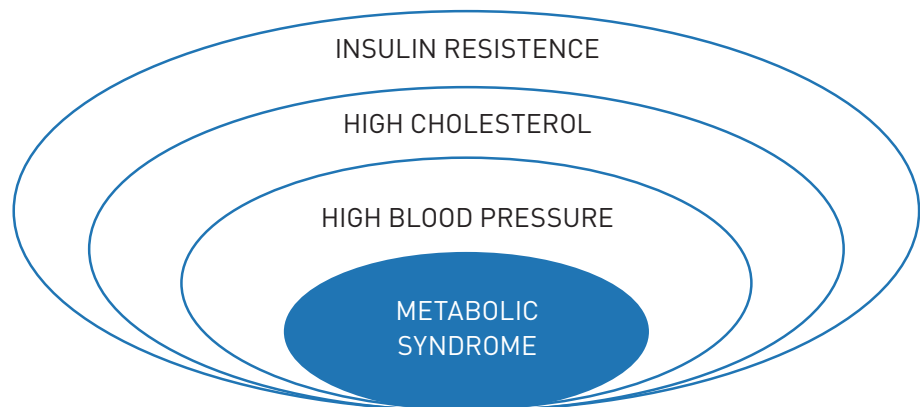
LACTIC ACID BACTERIA FROM BULGARIAN NATURE



- For Improving Human Health and Quality of Life

A NEW THERAPEUTIC APPROACH AND STRATEGY IN THE TREATMENT PROPHYLAXIS OF THE GASTROINTESTINAL TRACT MICROBIOTA

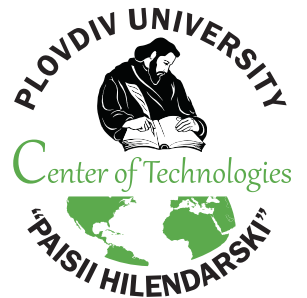
Solutions and Impact on:





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