**ROADMAP OF BOTANICAL RESEARCH GROUPS**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **2011-2025**  **Period** | * **Domain** | **Science** | **Product** | **Process** | **Utilization** |
|  | Biopharmacy | Investigating plants that can produce useful and medicinal metabolites | Improving the products/ secondary metabolites products | Increasing the efficiency and extraction of metabolite compounds | Secondary metabolite products that are useful in the pharmaceutical field |
| 2011-2025  Period | Biotechnology of Plant | Studying the molecular characters of stress tolerance in plants | Producing superior varieties that have high drought resistance and high yield potentials | Molecular characterization and induction of genetic diversity | High drought resistant and high yielding superior varieties |

***First Period***

1. Exploration, identification and characterization of medicinal plants
2. Analysis of bioactive substances in plant organs
3. Phytochemical screening of organic medicinal plants

***Second Period***

1. Screening of biopharmaceutical potentials of medicinal plants
2. Screening of the effective dose / efficacy testing and the lethal dose of natural ingredients of traditional medicine
3. Optimization of callus growth in solid and liquid media (callus granular) / shaker
4. Testing the callus culture content

***Third Period***

1. Isolation of active components
2. Production of secondary metabolites through in vitro culture
3. Manufacturing products on an industrial scale
4. Marketing

Third Period

Industry (realization of the product)

Second Period

Basic Research

(one step to industry)

First Period

Basic Research