

## In-House R&D Projects - PLC

Year 2013-14

1.	Evaluation of locally available Herbal, Unani, Ayurvedic and Natural Products based on Pharmacology
2.	Utilization of food industries processing waste (by-products) in the preparation of novel food (nutraceutical).
3.	Technology Development of Grafted Polychloroprene rubber Adhesive
4.	Production Of Mineral Based Sodium Chemicals (Sodium Sulphate, Sodium Acetate And Sodium Sulphide)
5.	Preparation of biodegradable polymer by isolated bacterial strains from different sources and its blending with synthetic polymer
6.	Recovery of the caustic soda being wasted in the mills through sewerage
7.	Up-Gradation Studies of Viable Minerals of KPK and FATA Region
8.	Preparation of Sodium Tri polyphosphate (STPP) from commercial grade phosphoric acid.
9.	Improvement and Standardization of Herbarium
10.	Synthesis of Pyrazine based Products as Monotherapeutic Agents for Tuberculosis
11.	Extraction, Standardization and Value addition of Medicinal Plants into Herbal Products
12.	Phytochemical and Pharmacological Studies on <i>Rhododendron arboreum</i>
13.	Manufacturing of Nutritious Bakery Products on Pilot Plant Scale
14.	Utilization of some Citrus Fruits and its Waste (Peels) as Natural Antioxidants for Edible Oils and Fat

15.	Studies on Processing and Preservation of different Seasonal Fruits/ Vegetables.
16.	Utilization of Agricultural Food Wastes for the Production of Single Cell Protein
17.	Development of a Process for the Production of Sea-buckthorn Tea Leaves
18.	Studies on the Preservation and Storage Stability of Sugar Cane Juice by Different Methods
19.	Utilization of Fruit Waste (Mango Peel etc) for the Preparation of Value-added Food Products
20.	Development of Cost Effective Food Supplement for Lactating Women
21.	Utilization of Dates in the Preparation and Development of Nutritious Food products
22.	Preparation and Development of Functional Food Products
23.	Cultivation of Mushrooms
24.	Physico-Chemical Characterization and Enrichment of Manganese Ore of Mohmand Agency
25.	Gainful Utilization of Marble Waste Slurry

## Year 2014-15

1.	Preparation of Low Ashed High Solid Concentration Coal Water Slurry
2.	Preparation of Chrome Chemicals from Chromite Ore
3.	Preparation and Testing of Non-explosive Demolition Agent with Improved Characteristic
4.	Pilot Plant Studies on Production of Aluminium Silicate from Indigenous Bauxite Ore
5.	Preparation of Non-Polluting Deicing Agent (Calcium Magnesium Acetate)
6.	Development of Technology for the Treatment of Canal/River water for Human Consumption
7.	Preparation and process development of black mulberry based products
8.	Preparation of aromatic herbal tea from the leaves / stems of Seabuckthorn, duke rose and thymes.
1.	Analytical Methods Development and their Applications for the Quality Evaluation of Herbal, Pharmaceutical and Dairy Products
2.	Phytochemical and Biological Studies of <i>Myrtus</i> Species.
3.	Development of Process for the Manufacturing of Lactulose
4.	Synthesis of New Pyrrolizin Derivatives having Analgesic, Anti-Pyretic and/or Anti-Inflammatory activities
5.	Preparation and Utilization of Opuntia Extracts in Herbal Products
6.	Studies on Pharmacological and Therapeutic Activity of Selected Medicinal Plants and their Product/Formulation Development into Pharmaceutical Dosage Forms.
7.	Utilization and Evaluation of Feed Additives as Binders to Inactivate/Detoxify Mycotoxin and Mycoflora in Feed Stuffs
8.	Studies on Increasing Post Harvest Storage Life of Different Fruits
9.	Studies on the Preparation of Nutrient Dense Formula for Hospitalized Patients

10.	Development of Cementitious Composite from Minerals/Organic Wastes for Construction Industry
11.	Up-Gradation Studies of Viable Minerals of KPK and FATA Region
12.	Technology Development of Bentonite Superabsorbent Composite
13.	Synthesis of Silver Nanoparticles and its Application to Dental Materials
14.	Preparation of Inorganic Flame Retardants
15.	Emulsification of Rock Asphalt/Bitumen
16.	Industrial Effluent Treatment through Ozonation
17.	Designing and Fabrication of Energy Efficient Water Geyser
18.	Designing, Fabrication & Installation of Zero Head Turbine (Water Wheel Turbine)
19.	Extraction, Standardization and Value addition of Medicinal Plants into Herbal Products
20.	Preparation and Utilization of Opuntia Extracts in Herbal Products
21.	Evaluation of locally available Herbal, Unani, Ayurvedic and Natural Products based on Pharmacology
22.	Analytical Methods Development and their Applications for the Quality Evaluation of Herbal, Pharmaceutical and Dairy Products
23.	Development of Process for Manufacturing Lactulose
24.	Utilization and Evaluation of Feed Additives as Binders to Inactivate/Detoxify Mycotoxin and Mycoflora in Feed Stuffs
25.	Studies on Increasing Post Harvest Storage Life of Different Fruits
26.	Studies on the Preparation of Nutrient Dense Formula for Hospitalized Patients

## Year 2015-16

1.	Preparation of Chrome Chemicals from Chromite
2.	Preparation and Testing of Non-explosive Demolition Agent with Improved Characteristics
3.	Up-Gradation Studies of Viable Minerals of KPK and FATA Region
4.	Evaluation of locally available Herbal, Unani, Ayurvedic and Natural Products based on Pharmacology
5.	Utilization of food industries processing waste (by-products) in the preparation of novel food (nutraceutical).
6.	Production of Mineral Based Sodium Chemicals (Sodium Sulphate, Sodium Acetate and Sodium Sulphide)
7.	Emulsification of Rock Asphalt/Bitumen
8.	Preparation of Sodium Tri polyphosphate (STPP) from commercial grade phosphoric acid.
9.	Technology Development of Grafted Polychloroprene rubber Adhesive
10.	Preparation of Polyacrylic Resin as superabsorbent for Plastic Industry
11.	Preparation of biodegradable polymer by isolated bacterial strains from different sources and its blending with synthetic polymer
12.	Designing and Fabrication of Energy Efficient Water Geyser
13.	Pilot Plant Studies on Production of Aluminium Silicate from Indigenous Bauxite Ore
14.	Preparation of Inorganic Flame Retardants
15.	Preparation of Non-Polluting Deicing Agent (Calcium Magnesium Acetate)
16.	Development of Cementitious Composite from Minerals/Organic Wastes for Construction Industry
17.	Technology Development of Bentonite Superabsorbent Composite
18.	Synthesis of Silver Nanoparticles and its Application to Dental Materials

19.	Fabrication and designing of potable and movable solar dryer
20.	Development of gluten free buckwheat flour and its utilization in the production of different therapeutic food products.
21.	Preparation of Herbal products from Saw-palmetto for the treatment of Benign Prostatic Hyperlasia (BPH).
22.	Synthesis of Polyacrylic Resin as Superabsorbent for Plastic Industry
23.	Utilization of Food industries processing waste (by-products) in the preparation of novel food (Nutraceutuical)
24.	Preparation and utilization of Opuntia extracts in herbal products.
25.	Cultivation and propagation of seabuckthorn plant at farm field to overcome the dependancy on wild produce and product development of seabuckthorn fruits.
26.	Utilization of Russian olive (Elaeagnusangustifolia) in the preparation of different Food Products.