



# COMPOSITIONAL ANALYSIS AND DATABASE

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CHAIR

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# PROGRESS REPORT FY 2022-23, 2023-24, 2024-25

Sr. No.	Description	Year 1 (2022-23)		Year 2 (2023-24)		Year 3 (2024-25)	
		Actual Target	Remarks	Actual Target	Remarks	Actual Target	Remarks
1	Analyzed products/indigenous/fortified foods for nutritional and chemical parameters	30	Achieved	150	Achieved	140	Achieved
2	No. of Apps developed	1	Achieved	1	Achieved	1	Achieved

# INTRODUCTION

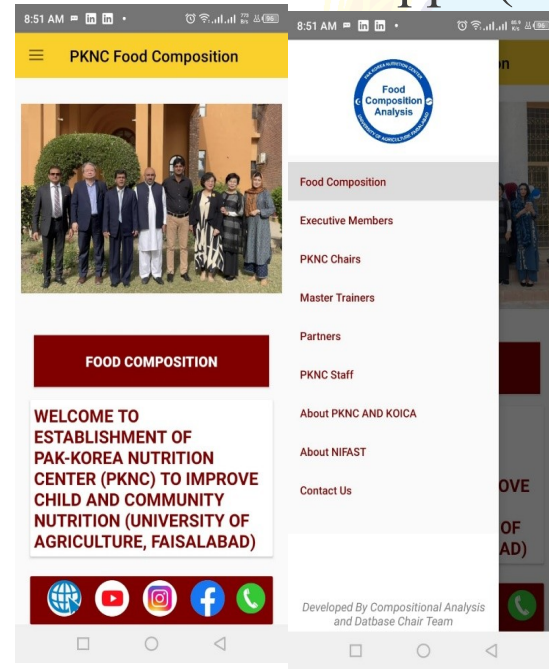
- Compositional Analysis and Database is one of the thematic chairs under Pak-Korea Nutrition Center (PKNC).
- The main aim of this chair is to analyze 350 different food items, develop 3 apps and 1 database.
- In year 2022-23, 2023-24 and 2024-25 we analyzed 320 different food items including PKNC developed functional products, raw foods and cooked/processed foods from various food groups which include fruits, vegetables, milk and milk products, cereal and legumes, pulses, meat and meat products, seeds and nuts.
- We analyzed these food items for crude protein, crude fat, crude fiber, moisture, ash, NFE, pH, acidity, iron, zinc, copper, manganese, sodium, potassium, calcium, magnesium, total phenolic content (TPC), total flavonoid content (TFC), 2, 2-diphenyl-1-picrylhydrazyl (DPPH), Ferric reducing ability of plasma (FRAP) and total energy.

# CONTINUE

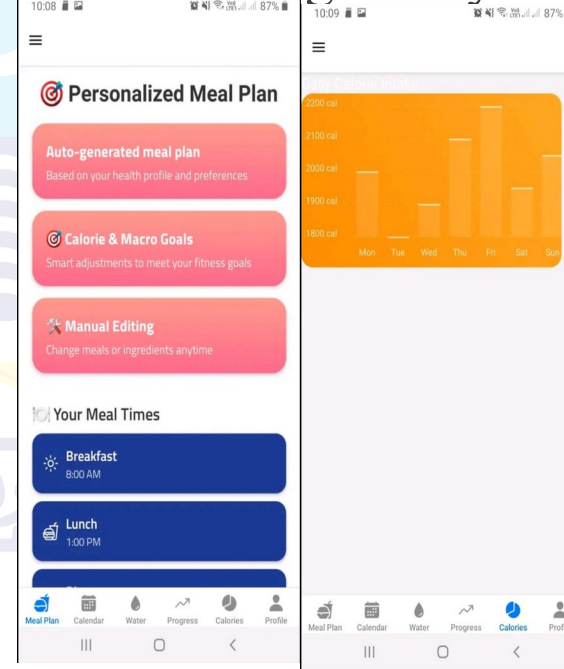
- We have also developed four mobile apps (available at Google Playstore)



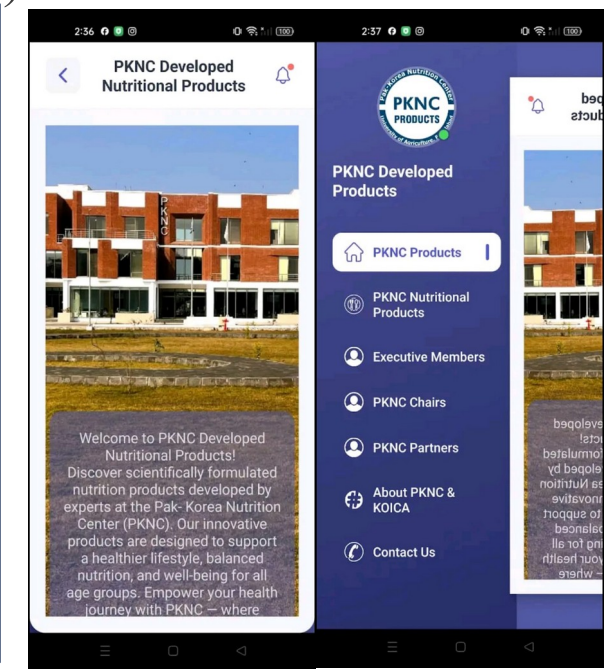
PKNC Survey App



PKNC Food Composition and Analysis App



PKNC Diet Planner App



PKNC Developed Nutritional Products App

## CONTINUE

- The aim of these apps is to provide the food/nutrient composition to end user i.e. community.
- PKNC survey app facilitates in nutritional and dietary habits related surveys
- By using PKNC food composition app a person may find out the nutrient composition of his/her interest.
- PKNC Diet Planner App is developed to enable masses to know about their nutritional requirements and dietary options for optimized nutritional status
- New app is developed to enhance community reach to the PKNC developed products, their composition and functional & bio-physiological benefits with future prospects of this app becoming a platform for online sale of such products

# OBJECTIVES

- Availability of chemical composition data for a variety of products
- Availability of nutritional data for developing dietary guideline
- Provision of baseline data for future food fortification and product development
- Availability of chemical composition of fortified products for development of food composition table
- Availability of chemical composition of new products developed for development of food composition table
- Availability of nutritional value of fortified products for development of food composition table
- Availability of nutritional value of new products developed for development of food composition table
- Development of data base app through data analysis and interpretation

# NUTRITIONAL DATABASE

- One of the KPI's of Compositional Analysis and Database chair is development of food composition database
- This database will be helpful for general public for dietary planning as well as a reference for research projects
  - Super Admin Dashboard <https://pkncuaf.com/forms/admin/panel/dashboard.php>
  - Chair by Chair Admin Panel <https://pkncuaf.com/staff/>
  - Chair by Chair Analysis Database <https://pkncuaf.com/staff/analysis.php>
  - Developed Products Database <https://pkncuaf.com/staff/dproduct.php>
  - Online Survey/ Assessment Form <https://pkncuaf.com/survey/>
  - Provincial Partners Database Management Dashboard (on going work)

The image displays two screenshots of the PKNC nutritional database web application. The top screenshot shows a form for entering product details, including Name, Group, Physicochemical analysis (Crude Fat, Crude Fiber, Moisture, Ash, ME, pH, Acidity), Mineral analysis (mg/100g) (Iron, Zinc, Copper, Magnesium, Sodium, Potassium, Calcium, Phosphorus), Antioxidants (TIC, TPC, DPPH, FRAP), and Total Energy (Kcal). The bottom screenshot shows a table of product data with columns for product name, crude protein, crude fat, moisture, ash, ME, pH, and various mineral and antioxidant levels.

ID	Action	Image	product	Crude Protein %	Crude Fat %	Crude Fiber %	Moisture %	Ash %	ME %	pH	Antioxidant mg/100g	Iron mg/100g	Zinc mg/100g	Copper mg/100g	Magnesium mg/100g	Sodium mg/100g	Phosphorus mg/100g	Calcium mg/100g	Potassium mg/100g	TIC mg/100g	TPC mg/100g	DPPH % inhibition	FRAP µmol/100g	Energy k
1	edit		Bread	10.24	2.23	5.17	23.61	1.69	18.254	6.19	0.223	3.10	0.60	0.20	0.60	100	200	30	40	31	20.99	153.90	10.41	289.7
2	edit		Tea	12.26	18.93	2.03	3.96	4.293	17.245	5.63	0.25	1.90	0.40	0.10	0.30	140	100	70	34	17.17	54.66	53.60	65.36	494.1
3	edit		Lentils	8.48	22.33	6.4	15.036	2.953	48.977	6.5	0.97	3.30	0.50	0.10	0.30	140	100	70	34	17.17	54.66	53.60	65.36	494.1
4	edit		Quinoa	13.36	15.5	0.9	29.448	0.953	10.835	6.333	0.983	1.10	0.40	0.08	0.30	100	100	60	18	10.33	33.01	44.49	80.9	352.1
5	edit		Beard	8.587	21.966	2.633	42.064	3.286	27.901	5.827	0.6	2.30	0.40	0.10	0.30	100	100	80	25	10.33	33.01	44.49	80.9	352.1
6	edit		Bart	10.07	16.68	1	20.16	3.12	20.97	6.97	0.083	2.30	0.40	0.10	0.30	100	100	80	25	10.33	33.01	44.49	80.9	352.1
7	edit		Cup-Cake	4.472	18.266	0.87	18.006	1.026	18.725	6.03	0.2	1.00	0.40	0.06	0.30	100	100	45	18	10.33	33.01	44.49	80.9	352.1
8	edit		Bun	4.766	7.46	0.75	7.86	1.25	75.50	6.16	0.22	1.80	0.40	0.08	0.30	100	100	45	18	10.33	33.01	44.49	80.9	352.1
9	edit		Fruit-Cake	6.50	12.25	1.65	36.87	1.953	10.517	5.0	0.6	2.10	0.50	0.10	0.40	100	100	50	30	27.33	66.46	89.068	92.71	318.5
10	edit		Canned-Cherry	10.075	10.83	0.433	67.4	2.193	7.85	6.247	0.083	3.50	4.40	0.60	1.00	60	300	100	80	100.00	5.07	10.022	10.0	81.9
11	edit		Pieel	5.387	23.283	0.427	10.550	1.973	18.20	6.03	0.83	2.40	1.00	0.30	0.60	40	100	42	30	28.84	62.08	542.89	16.85	463.1

# SUSTAINABILITY PLAN

- Pak-Korea Nutrition Center is a state-of-the art building. In future, Compositional analysis and database chair will offer trainings on advanced instruments/equipment.
- This chair will also offer sample analysis on commercial bases for academia, industries and research institutes.
- Sample analysis charges will be different for UAF students/employee and other institutes i.e. academia, industries and research institutes
- These two models will be helpful for the sustainability of the PKNC and also for revenue generation.
- Furthermore, compositional database can be used to accurately label food products with nutritional information, enabling consumers to make healthier and balance diet choices.
- Identifying food items with high nutrient content that might otherwise be discarded, promoting waste reduction strategies.

## CONTINUE

- By analysing the nutrient profile of different food production methods, it will be helpful to optimize resource use and minimize environmental impact.
- Using compositional databases to analyse dietary intake patterns and identify potential health risks associated with specific food components and may prevent such type of risk factors.
- Using the compositional database of food items, dietary recommendations may be developed on the basis of a person`s nutrient needs and their daily requirement.
- Determining the nutritional composition of food products to ensure quality and safety while considering sustainability aspects of food production.
- Furthermore, this compositional analysis database will help to develop dietary guidelines, patient care, product development and making national food and nutrition polies.
- Collaborations may also be developed with other stakeholders from academia, research institute and industries.

## PKNC TEAM ENGAGED IN ANALYSIS

