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PROXIMATE COMPOSITION OF THE PREPARED DISHES OF DISTRICT MARDAN AND PESHAWAR

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ABSTRACT

Chemical composition of the dishes prepared in the farmers' homes of Peshawar and Mardan districts were determined. Three villages in district Peshawar and three villages in district Mardan were selected on the basis that farmers community were living there and these villages were far away from each others covering ethnic and geographical variation. Hundred farmers' were selected from each village for a larger nutritional study. Information about ingredient formulation and cooking procedure of the dishes was obtained by filling a questioner from 20% of the selected farmers. The dishes were collected from these farmers and analyzed for proximate. The results of the study show the range of various nutrient contents which were; moisture 32.52% (wheat bread bazari) to 96.0% (soup); ash 3.0% (rice) to 11.3% (cabbage ground beef); protein 6.1% (bringil) to 44.3% (soup); fat 0.99% (wheat bread (home)) to 67.9% (spinach (palak) egg); fiber 1.5% (wheat bread (bazaar) to 26.8% (mash bean mint (chakni); Nitrogen Free Extract 0.87% (lady-finger meat) to 75.7% (wheat bread (home); The energy content (kcal/100g) ranged from 384 (wheat bread (home) to 708 (spinach (palak) egg). In conclusion, the dishes of rural areas of these two districts were found quite variable in ingredients and nutrients.

Keywords: Composition of prepared dishes, ingredients, nutrients, Peshawar, Mardan.

INTRODUCTION

Knowledge of food intake and its chemical composition is the first essential in the dietary treatment of diseases (McCance and Widdowson, 1940) and make the basis for any nutritional intervention. This often quoted remark indicates the original motivation behind food composition studies that are normally carried out to identify and determine the chemical nature of the food components affecting health and the mechanisms whereby chemical constituents exert their influence (Greenfield and Southgate, 2003).

Food composition tables are absolutely basic tools for the work of the dietitian and the human nutritionist. Every dietary prescription is built on the data in the food tables. Every study of the relationship between diet and health depends on the use of food Tables to calculate nutrient intake. (Robertson, 2003). Food composition provides detailed information on the concentrations of nutrients and nutritionally important components in foods. Food composition have a wide variety of uses, which includes; assessment of health and nutritional status at individual, regional, national and international levels; formulation of appropriate institutional and therapeutic diets, including those for schools and hospitals; helping to identify nutrition education and health promotion needs; food and nutrition training; epidemiological research on relationships between diet and disease; devising nutrition labeling; food product and recipe development; monitoring the nutritional value, safety and authenticity of foods for food trade, and consumer protection and information; improvements to the food supply, such as plant breeding and new methods of cultivation, harvesting and preservation. Dietary assessments can only be as good as

the food composition is accurate (Bingham, 1987) the use of foreign chemical composition data presents many problems due to the complexity of developing and compiling data for food composition tables. The problem becomes more difficult when the data available are relatively old, or lack information about a local food dish.

Various macro- and micro-nutrients deficiencies/imbalances still exist in various sections of the Pakistani population, resulting in low health standards, poor productivity in terms of physical and cognitive work, and high prevalences of various communicable and non-communicable diseases. These may not be necessarily the outcome of lack of food availability. Improper selection of food items may also add to the phenomenon. The evidence from epidemiological studies and national assessments of nutritional status have, therefore, led to increased guidance and education programmes on choosing a healthy diet.

Farmer's communities have cultural foods, prepared in traditional ways. However reported data on chemical composition of the prepared dishes of these communities are non-existent. Ingredients formulation, preparation methods and chemical composition of the daily foods must be documented with a view to assess the nutritional status of the people in a given community. Present studies were undertaken to determine the composition of prepared food of agricultural families belonging to different geographical locations in Khyber Pakhtunkhwa province of Pakistan.

MATERIALS AND METHODS

Location and selection of villages

The study was conducted in three villages each of districts Peshawar and Mardan. These villages were selected on the criteria that the villages were having farmer's community, were located at distance from each other, and if connected by a line, it made a triangle and covered the maximum area of the district. Based on the above criteria, villages Lakkari, Achini, and Tarnab were selected in Peshawar district and villages Rustam, Korough, and Pirsaddi were selected in Mardan district. The selected villages covered the cultural and geographic variation amongst the villages.

Selection of farmers in the villages

One hundred farmers were selected based on their availability either in home or field. Out of these 100 farmers 20 farmers in each village were selected by lottery method. Questionnaire regarding the information about the ingredients (Appendixes) of the prepared dish and cooking procedure of the dish was filled. Sample of the dish was collected in a plastic jar, labeled and sealed. The size of the sample was one plate in the language of the farmer. After taking the weight of individual dish, if there were similar dishes in a village, they were combined together to make a composite sample for analysis at Nuclear Institute of Agriculture and Food.

Drying of the sample

These samples were dried in an oven at 105°C for 24 hours. Weights before drying and after drying were recorded for moisture calculations. The dried samples were stored in the plastic jars.

Proximate composition of dishes

Moisture, ash, crude protein, fat, and crude fiber were determined by the official method of AOAC (2003). Nitrogen free extract calculated by subtracting % crude protein, fat, fiber and ash from 100 i.e., NFE = 100-(% crude protein + % crude fat + % crude fiber + % ash).

Statistical analysis of the data

The data was statistically analyzed for mean using Excel package MS Office, 2010.

RESULTS AND DISCUSSIONS

Dishes prepared in the area

Various types of dishes are prepared in the farmers families. These dishes have different ingredients in different amounts. The major dishes of farmer's families are either vegetables or pulses. Mixed vegetable dishes and vegetable pulses dishes are frequently cooked in farmer's families. Meat dishes are rare and occasion specific. Rice dishes are also not very common except when rice is produced on their own farms. The farmer's families prepared different dishes on various days of the week and sometime, even on the same days, for lunch and dinner, fulfilling the concept of eating a variety of foods.

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Table-1. Proximate composition of dishes in District Peshawar.

Dish English Name	Urdu Name	Fresh weight (g)	Dry weight (g)	Dry weight Bases						Energy Kcal
				Moisture %	Ash %	Protein %	Fat %	Fiber %	NFE %	
Potato meat	Alo gosht	238	91	44.4	10	27.6	19.6	3.5	39.3	451
Chickpea	Dalchana	142	37	73.1	6.3	23.3	25.9	3.5	41.1	498
Chickpea ground beef	Dalchana qeema	178	56	68.5	6.5	24.7	18.2	3.2	47.4	459
Potato	Alo	115	19	80.1	7.8	9.4	35.3	4.1	43.7	538
Cauliflower ground beef	Gobi qeema	153	26	61.0	11.3	19.3	38.3	7.1	24.1	533
Spinach (gan dana)	Gandana sag	212	17	50.7	6.0	19.4	36.7	8.5	29.5	543
Squash meat	Tinda gosht	105	15	75.7	8.3	27.9	40.8	6.5	16.6	558
Colocasia	Kachalo	102	19	67.2	5.1	14.1	31.9	3.5	45.3	532
Squash	Tinda	135	21	87.3	10.3	18.3	47.0	4.8	19.6	584
Mash	Dal mash	143	41	75.4	5.8	21.7	31.6	2.4	38.2	529
Lentil	Thoti Dal	103	16	64.9	8.5	26.1	20.2	2.1	43.1	463
Potato peas	Alo matter	112	17	66.3	5.5	17.9	43.6	4.9	28.1	586
Yellow yogurt	Kari	101	22	64.0	7.3	11.9	37.3	4.4	39.2	549
Corn bread	Makkai roti	250	140	47.6	4.5	17.4	9.9	2.30	65.8	427
Wheat bread (bazaar)	Bazari gandam roti	150	102	32.5	5	18.9	1.7	1.5	72.9	386
Wheat bread (home)	Gar ki gandam roti	200	117	42.2	4	17.1	0.9	2.3	75.7	384
Chickpea meat	Dalcha gosht	110	27	56.7	6	28.9	24.6	1.9	38.6	495
Red bean	Lobia	110	32	59.1	5.5	20.9	27.4	4.2	42.1	507
Bringil ground beef	Bangan qeema	105	23	58.5	8	19.2	53.9	4.8	13.9	627
Colocasia meat	Kachalo gosht	95	15	63.9	10	26.1	32.3	2.6	29.1	517
Peas meat	Matter gosht	110	29	55.1	5	27.9	42.1	4.5	20.6	582
Rice mung bean	Mash polao	110	19	51.7	5	18.4	13.7	1.6	61.3	445
Green pepper	Shimla Mirach	95	27	50.5	4.5	15.1	63.4	4.2	12	687
Spinach (palak) egg	Anda Sag palak	230	71	38.9	5.5	16.5	67.9	4.4	5.6	708
Peas fenugreek	Matter methi	150	35	76.6	7.5	20.4	50.9	4.4	16.9	616
chickpea spinach	Sag dalchana	130	36	72.2	9	21.1	47.2	3.4	19.3	593
Spinach (peshter)	Peshter Sag	90	29	67.8	12.5	18.2	54.7	6.1	8.5	611
Squash ground beef	Tinda qeema	105	20	80.6	8.5	22.1	41.1	17.8	10.6	536
Green pepper ground beef	Shimla Mirach	140	37	73.7	7	21.8	37.3	8.7	25.2	541
Culiflower ground beef	Gobi qeema	110	18	83.6	9.5	10.0	30.6	24.1	25.8	467

* Sample were determined in duplicate

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The weights and proximate composition of dishes in District Peshawar is given in Table-1. The fresh weight ranged from minimum (90g) for spinach (peshter) to maximum (238g) for potato meat. The dried weight ranged from (15g) for squash meat and colocasia meat to (91g) for potato meat. The moisture content of these dishes ranged from (32.5 %) for wheat bread (bazzar) to (87.3%) for squash. The ash content of these dishes ranged from (4 %) for wheat bread (home) to (12.5%) for spinach (peshter). The protein content ranged from (9.4%) for potato to (28.9%) for chickpea meat. The fat content ranged from (0.9%) for wheat bread (home) to (67.9%) for spinach egg. The fiber content ranged from (1.5%) for wheat bread (bazaar) to (24.1%) for cabbage ground beef. The NFE content ranged from (5.6%) for spinach egg to (75.7%) for corn bread. The energy ranged from (384kcal) for wheat bread (home) to (708 kcal) for spinach egg.

Table-2. Proximate composition of dishes in District Mardan.

Dish English Name	Urdu Name	Fresh weight (g)	Dry weight Bases							
			Dry weight (g)	Moisture %	Ash %	Protein %	Fat %	Fiber %	NFE %	Energy Kcal
Okra	Bandi	150	32	41.6	7.5	11.2	49.2	5.9	26.2	604
Colocasia	Kachalo	50	3	43.1	7.0	8.4	43.4	6.5	34.7	576
Mash	Dalmash	120	31	46.8	6.2	17.0	20.5	11.9	44.5	454
Potato meat	Alo gosht	161	35	78.6	7.3	17.9	41.7	6.2	30.5	581
Potato	Alo	104	17	81.8	6.8	10.1	29.9	13.1	40.1	496
Squash	Tinda	129	17	83.5	7.2	10.8	43.1	6.1	32.9	575
Whole mash	Sabat Dalmash	197	46	76.6	7.0	13.5	23.9	3.1	49.1	472
Chicken	Murgi	154	20	86.9	11.0	25.8	38.7	21.0	3.5	508
Squash meat	Tinda Meet	108	18	82.9	5.0	29.5	53.4	10.8	1.3	625
Okra meat	Bindi gosht	117	20	52.9	8.0	20.1	52.3	18.7	0.9	592
Bringil	Bangan	237	38	55.3	8.7	6.1	55.3	7.1	22.8	628
Yellow yogurt	Kari	353	53	84.3	6.8	16.0	37.5	6.5	33.3	548
Rice	Polao	171	33	43.7	3.0	9.3	16.9	6.9	63.9	459
Spinach (peshter)	Peshtar Sag	179	34	72.2	7.5	12.6	48.9	7.9	23.1	599
Red Bean	Lobia	131	30	57.4	6.3	16.4	27.6	13.8	35.9	485
Green pepper	Shimla Merch	98	8	40.9	9.0	12.1	31.6	8.3	39.1	506
Mash mint(chakni)	Dalmash chakni	228	56	75.7	7.5	16.6	19.1	26.8	29.9	412
Sponge guard	Tori	95	13	51.5	9.0	10.1	50.1	8.8	21.9	597
Soup	Yakhni	275	11	96.1	4.5	44.3	25.1	19.6	6.4	468
Peas	Mattar	104	20	48.2	5.0	15.1	12.6	18.0	49.3	407
Potato peas meat	Alo matter goshat	165	30	58.7	7.0	14.3	15.8	18.5	44.4	414
Meat	Goshat	136	15	89.0	6.5	35.3	24.8	25.2	8.1	447
Ground beef	Qeema	163	28	82.6	4.5	6.5	57.1	8.9	23.0	650
Colocasia meat	Kachalo gosht	164	30	81.9	4.5	21.8	18.6	20.1	34.9	434
Ground beef	Kabab	102	25	42.6	8.0	19.2	33.1	22.8	16.9	488

* Sample were determined in duplicate

The weights and proximate composition of dishes in District Mardan is given in Table-2. The fresh weight ranged from minimum (50g) for colocasia to maximum (353g) for yellow yogurt. The dried weight ranged from

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(3g) for colocasia to (56g) for mash mint (chakni). The moisture content of these dishes ranged from (40.9%) for green pepper to (96.1%) for soup. The ash content of these dishes ranged from (3.0%) for rice to (11%) for chicken. The protein content ranged from (6.1%) for bringil to (44.3%) for soup. The fat content ranged from (12.6%) for peas to (57.1%) for ground beef. The fiber content ranged from (3.0%) for whole mash to (26.83%) for mash mint (chakni). The NFE content ranged from (0.87%) for okra meat to (63.9%) for rice. The energy ranged from (407 kcal) for peas to (650 kcal) for ground beef.

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APPENDECES

Appendix-1. Ingredient formulation of squash and squash meat curry.

Squash curry		Squash Meat curry	
Ingredients	%	Ingredient	%
Tindi	70	Tindi	55
Tomato	15	Meat	20
Onion	4	Tomato	12
Fat	8	Onion	3
Salt	1	Fat	7
Cumin Seed	0.3	Garlic	0.55
Coriander	0.7	Salt	1
Turmeric	0.3	Cumin Seed	0.2
Red Chilli	0.1	Coriander	0.5
Garlic	0.5	Red Chilli	0.2
		Spices	1
		Turmeric	0.2
		Ginger	0.3

*The amount of water used in formulation is not included

Appendix-2. Ingredient formulation of red bean and spinach chickpea curry.

Red Beans curry		Spinach chickpea curry	
Ingredient	%	Ingredient	%
Red Beans	55	Spinach	36
Tomato	19	Chickpea	36
Onion	9	Tomato	3
Fat	12	Fat	20
Salt	1	Garlic	1
Coriander	1	Salt	1
Red Chilli	1	Spices	1
Green Chilli	2	Cumin Seed	0.6
Turmeric	0.4	Turmeric	0.4
Cumin Seed	0.4		
Garlic	1		
Spices	1		

*The amount of water used in formulation is not included

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Appendix-3. Ingredient formulation of green pepper and squash ground beef curry.

Green Pepper		Squash ground beef	
Ingredient	**%**	**Ingredient**	**%**
Green paper	68	Tindi	35
Tomato	13	Ground beef	34.6
Onion	4	Tomato	13.84
Fat	12	Onion	4.15
Salt	1	Fat	9.68
Turmeric	0.3	Garlic	0.34
Red Chilli	0.3	Ginger	0.27
Coriander	1	Salt	0.69
Garlic	1	Spices	0.69
Spices	1	Cumin Seed	0.27
		Coriander	0.42
		Turmeric	0.21
		Red Chilli	0.21

*The amount of water used in formulation is not included

Appendix-4. Ingredient formulation of squash and cauliflower ground beef curry.

Mash curry		Cauliflower ground beef curry	
Ingredient	**%**	**Ingredient**	**%**
Mash	49.80	Cauliflower	65.0
Tomato	20.20	mash meat	10.8
Fat	14.65	Tomato	10.8
Salt	1.14	Onion	2.6
Coriander	0.80	Fat	9.1
Turmeric	0.35	Garlic	0.2
Cumin Seed	0.41	Ginger	0.2
Red Chilli	0.60	Salt	0.4
Onion	7.60	Spices	0.4
Garlic	1.99	Cumin Seed	0.2
Green Chilli	1.05	Turmeric	0.1
Yogurt	34.62	Red Chilli	0.1
Ginger	0.61		

*The amount of water used in formulation is not included

Appendix-5. Ingredient formulation of chickpea meat and cabbage ground beef curry.

Chickpea meat curry		Cabbage ground beef curry	
Ingredient	**%**	**Ingredient**	**%**
Chickpea	52.95	Cabbage	63.13
Meat	13.23	ground beef	15.78
Tomato	11.91	Tomato	9.47
Onion	7.14	Onion	1.89
Fat	10.81	Fat	6.63
Garlic	1.12	Garlic	0.95
Salt	0.82	Ginger	0.25
Spices	0.59	Salt	0.32
Cumin Seed	0.42	Spices	0.44
Coriander	0.63	Coriander	0.57
Turmeric	0.27	Turmeric	0.19
Red Chili	0.09	Red Chili	0.38

*The amount of water used in formulation is not included

Appendix-6. Ingredient formulation of colocasia meat and peas spinach curry.

Colocasia meat curry		Peas spinach curry	
Ingredient	**%**	**Ingredient**	**%**
Colocasia	54.27	Spinach	53.92
Meat	23.19	Peas	26.96
Tomato	9.43	Tomato	8.09
Onion	4.02	Onion	1.62
Fat	6.77	Fat	5.66
Garlic	0.56	Garlic	0.81
Salt	0.50	Salt	0.81
Cumin Seed	0.18	Spices	0.81
Coriander	0.48	Cumin Seed	0.43
Red Chili	0.16	Coriander	0.65
Ginger	0.17	Red Chili	0.24
Turmeric	0.14		
Spices	0.41		

*The amount of water used in formulation is not included

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Appendix-7. Ingredient formulation of spinach (peshter) and baked yogurt curry.

Spinach (peshter) curry		yogurt (kari) curry	
Ingredient	%	Ingredient	%
Spinach	33.51	Yogurt	46.91
Tomato	16.32	Tomato	14.25
Fat	40.22	Onion	6.70
Garlic	2.68	Fat	10.01
Salt	1.34	Garlic	1.38
Red Chili	0.40	Salt	0.78
Spices	1.19	Cumin Seed	0.38
Coriander	0.90	Turmeric	0.26
Onion	8.97	Grinded Pulses	5.74
		Red Chili	0.34
		Coriander	0.80
		Spices	1.02

*The amount of water used in formulation is not included

Appendix-8. Ingredient formulation of potato meat and potato curry.

Potato meat curry		Potato curry	
Ingredient	%	Ingredient	%
Potato	50.84	Potato	60.97
Meat	22.30	Tomato	16.81
Tomato	10.12	Onion	6.52
Onion	4.28	Fat	12.4
Fat	9.18	Garlic	0.89
Garlic	1.14	Salt	0.68
Salt	0.57	Cumin Seed	0.35
Coriander	0.71	Red Chili	0.35
Turmeric	0.20	Coriander	0.68
Red Chili	0.32	Spices	1.17
Green Chili	0.47	Turmeric	0.32
Spices	0.47	Green Chili	0.89
Cumin Seed	0.28		

*The amount of water used in formulation is not included

Appendix-9. Ingredient formulation of chickpea ground beef and colocasia curry.

Chickpea ground beef curry		Colocasia curry	
Ingredient	%	Ingredient	%
Chickpea	49.74	Colocasia	63.67
Ground beef	23.36	Tomato	17.23
Tomato	9.65	Onion	3.91
Onion	3.44	Fat	8.15
Fat	11.76	Garlic	0.77
Salt	0.57	Salt	0.73
Coriander	0.47	Cumin Seed	0.28
Turmeric	0.17	Coriander	0.77
Red Chili	0.24	Red Chili	0.24
Water	900	Water	1300
Green Chili	0.42	Yogurt	15.45
Garlic	0.63	Turmeric	0.18
Cumin Seed	0.17	Ginger	0.27

*The amount of water used in formulation is not included

Appendix-10. Ingredient formulation of rice bean and peas meat curry.

Rice bean (May)		Peas meat curry	
Ingredient	%	Ingredient	%
Rice	60.24	Peas	49.32
Bean	15.06	Meat	24.66
Tomato	9.04	Tomato	12.33
Onion	5.42	Onion	2.96
Fat	6.33	Fat	6.91
Garlic	0.90	Garlic	0.74
Salt	0.60	Salt	0.37
Spices	0.60	Spices	0.49
Cumin Seed	0.24	Cumin Seed	0.20
Coriander	0.72	Coriander	0.59
Turmeric	0.18	Turmeric	0.15
Red Chili	0.36	Red Chili	0.30
Cinnamon	0.30	Green Chili	0.99

*The amount of water used in formulation is not included

Appendix-11. Ingredient formulation of chickpea and bringil ground beef curry.

Chickpea curry		Bringil ground beef curry	
Ingredient	%	Ingredient	%
Chickpea	51.75	Bringil	61.12
Tomato	20.25	Ground beef	15.28
Onion	9.05	Tomato	9.17
Fat	14.49	Onion	3.67
Salt	1.04	Fat	8.56
Cumin Seed	0.41	Garlic	0.61
Coriander	0.96	Salt	0.61
Turmeric	0.31	Red Chili	0.18
Red Chili	1.12	Cumin Seed	0.24
Spices	0.95	Coriander	0.37
Garlic	1.42	Turmeric	0.18

*The amount of water used in formulation is not included

Appendix-12. Ingredient formulation of Lentils and spinach (gan dana) curry.

Lentils curry		Spinach (gan dana)	
Ingredient	%	Ingredient	%
Lentil	52.42	Spinach	81.70
Tomato	10.84	Tomato	10.21
Onion	6.29	Fat	6.13
Fat	14.47	Garlic	1.02
Garlic	1.96	Salt	0.41
Salt	0.74	Spices	0.41
Turmeric	0.31	Red Chili	0.12
Red Chili	0.31		
Coriander	0.66		
Ginger	0.44		
Cumin Seed	0.45		
Yogurt	24.02		

*The amount of water used in formulation is not included

Appendix-13. Ingredient formulation of potato peas and sponge gaura curry.

Potato peas curry		Sponge gaura curry	
Ingredient	%	Ingredient	%
Potato	26.53	Sponge gaura	69.35
Peas	53.05	Tomato	13.87
Tomato	7.96	Onion	4.16
Onion	3.18	Fat	10.40
Fat	7.43	Salt	0.69
Salt	0.53	Cumin Seed	0.28
Cumin Seed	0.21	Coriander	0.83
Coriander	0.64	Turmeric	0.21
Turmeric	0.16	Red Chili	0.21
Red Chili	0.32		

*The amount of water used in formulation is not included

Appendix-14. Ingredient formulation of rice and okra curry.

Rice (Basmati)		Lady finger curry	
Ingredient	%	Ingredient	%
Rice	65.06	Lady Finger	60.57
Tomato	9.76	Tomato	19.09
Onion	7.81	Onion	5.21
Fat	16.27	Fat	11.50
Salt	0.65	Garlic	0.87
Cumin Seed	0.26	Salt	0.87
Red Chili	0.20	Coriander	0.94
		Turmeric	0.42
		Red Chili	0.26
		Ginger	0.27
		Cumin Seed	0.21

*The amount of water used in formulation is not included

Appendix-15. Ingredient formulation of chicken and okra meat curry.

Chicken curry		Lady finger meat curry	
Ingredient	%	Ingredient	%
Chicken	63.69	Lady Finger	58.29
Tomato	9.55	Meat	14.57
Onion	3.82	Tomato	14.57
Fat	19.11	Onion	3.50
Garlic	1.27	Fat	6.12
Salt	0.64	Garlic	1.46
Cinnamon	0.25	Salt	0.44
Cumin Seed	0.25	Coriander	0.70
Coriander	0.38	Red Chili	0.35
Turmeric	0.19		
Red Chili	0.19		
Green Chili	0.64		

*The amount of water used in formulation is not included

Appendix-16. Ingredient formulation of ground beef and bringil curry.

Ground beef (kabab)		Bringil curry	
Ingredient	%	Ingredient	%
Ground beef	61.80	Bringil	64.01
Tomato	12.36	Tomato	13.74
Onion	14.83	Onion	11.9
Fat	8.65	Fat	7.96
Garlic	0.62	Salt	0.45
Ginger	0.25	Cumin Seed	0.43
Salt	0.62	Coriander	0.78
Spices	0.62	Turmeric	0.16
Cumin Seed	0.25	Red Chili	0.19
Coriander	0.74	Garlic	0.88
		Green Chili	1.03

*The amount of water used in formulation is not included

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Appendix-17. Ingredient formulation of peas and potato peas meat curry.

Peas curry		Potato peas meat curry	
Ingredient	**%**	**Ingredient**	**%**
Peas	71.97	Meat	10.62
Tomato	10.80	Tomato	10.62
Onion	4.32	Onion	2.55
Fat	10.80	Fat	9.56
Salt	0.32	Garlic	1.06
Cumin Seed	0.29	Peas	42.48
Coriander	0.86	Salt	0.85
Turmeric	0.22	Potato	21.24
Red Chili	0.43	Coriander	0.76
		Turmeric	0.06
		Red Chili	0.19

*The amount of water used in formulation is not included

Appendix-18. Ingredient formulation of meat and ground beef curry.

Meat curry		Ground beef curry	
Ingredient	**%**	**Ingredient**	**%**
Meat	53.88	Ground beef	37.62
Tomato	16.16	Tomato	22.57
Onion	12.93	Onion	18.06
Fat	11.31	Fat	15.80
Garlic	2.16	Garlic	3.01
Salt	1.08	Salt	1.50
Cumin Seed	0.43	Spices	0.75
Coriander	0.65	Turmeric	0.45
Turmeric	0.32	Red Chili	0.23
Green Chili	1.08		

*The amount of water used in formulation is not included

Appendix-19. Ingredient formulation of spinach and green pepper ground beef curry.

Spinach Egg		Green pepper ground beef	
Ingredient	**%**	**Ingredient**	**%**
Spinach	61.4	Green Pepper	63.7
Egg	24.6	Ground beef	15.9
Onion	3.7	Tomato	6.4
Fat	9.2	Onion	1.9
Salt	0.6	Fat	8.9
Turmeric	0.3	Garlic	0.6
Red Chili	0.2	Salt	0.6
Garlic	0.5	Spices	0.6
		Coriander	0.8
		Turmeric	0.2
		Red Chili	0.4

*The amount of water used in formulation is not included

Appendix-20.

Soup	
Ingredient	**%**
Meat	60.0
Tomato	18.0
Onion	14.4
Fat	6.0
spices	0.4
Salt	1.2

*The amount of water used in formulation is not included

Appendix-21. Weight of Spices, Tomato, Onion and Fats in terms of gram.

Ingredients	Household measure	Grams
Onion	1 No	60
Tomato	1 No	50
Spices	1 spoon	7
Coriander	1 spoon	6
Turmeric	1 spoon	3
Red chili	1 spoon	3
Fat	small spoon	50
Fat	Medium spoon	70
Fat	Large spoon	150
Green chili	1 No	5
Garlic pali	1 No	4
cumin seed	1 spoon	4
salt	1 spoon	5