Mixed Food Ingredients Formula With Local Ingredients For Under-Five (The Review of Physical Characteristic, Nutrient Content, Protein Quality, Organoleptic and Shelf-Life)

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Abstract—Prevalence of malnutrition and under nutrition in Under-five (Weight/Age) in Indonesia in 2013 is 19.6 and in Yogyakarta is 16.2%. It is the biggest six. The prevalence of short and stunting in Under-five (Height/Age) in Indonesia in 2013 is 19.2% and in Yogyakarta is 19.1% and it is the second biggest prevalence after Riau. The research aims to determine mixed food ingredients formulations in the form of flour for under-five that meet nutrient requirement which are accepted at the physical condition and adequate shelf-life using local ingredients. This research was quasi experiment with simple random design using 5 treatments (k=5), 2 repetitions (i=2), and 3 experimental units (n=3) so there were 30 experimental units in total. Formula E has the highest possibility to develop based on physical characteristic, nutrient content, protein quality, organoleptic characteristic and shelf-life. Formula E consists of rice, *tempe*, nile tilapia, carrot, sugar, and salt.

Keyword: Formula, mixed food ingredients, local food, under-five.

1. INTRODUCTION

Background: Prevalence of malnutrition and under nutrition in Under-five (Weight/Age) in Indonesia in 2013 is 19.6 and in Yogyakarta is 16.2%. It is the biggest six. The prevalence of short and stunting in Under-five (Height/Age) in Indonesia in 2013 is 19.2% and in Yogyakarta is 19.1% and it is the second biggest prevalence after Riau. The prevalence of short and stunting in 2013 for Yogyakarta city is 19.1%, Sleman regency is 19.9%, Bantul regency is 16.4%, Kulon Progo regency is 18.9%, and Gunungkidul regency is 23.3% (Johan, P.R., 2016). Prevalence of thin and very thin under-five (Weight/Height) in 2013 in Indonesia is 6.8% and in Yogyakarta is 4.7% and it is the biggest three after Central Sulawesi and Bali. The prevalence of thin and very thin in Yogyakarta city is 4.7%, Sleman regency is 3.8%, Bantl regency is 7.4%, Kulon Progo regency is 2.2% and Gunungkidul regency is 4.6% (Johan, P.R., 2016). Mixed food ingredients are the food processing products that complement especially nutrient fulfilment. Physical tests were conducted to the formulation including colour, smell, size, appearance and left-over.

2. MATERIALS AND METHOD

Method: This research was quasi experiment with simple random design using 5 treatments (k=5), 2 repetitions (i=2), and 3 experimental units (n=3) so there were 30 experimental units in total. The independent variable was the type of mixed food ingredients formula that was arranged from several local ingredients consisting of 5 mixed food ingredients formulas (Formula A, B, C, D, E). The dependent variables were physical characteristic, nutrient content, protein quality, organoleptic characteristic or acceptance,

and shelf-life. Short term achievement method was conducted to create mixed food ingredients formulas that fulfill physical and nutrient requirement. Biological test on Rattus sp was also conducted to obtain protein quality. Further or medium-term achievement method is formula that has highest possibility to develop will be made into food that is appropriate for under-five. The result of this research will be used to improve health education quality especially nutrition education through Education, Society Service and Continuing Research

3. RESULTS AND DISCUSSION

The research results showed that physical appearances of formula flour were in cream color (formula A and D), peachy white (formula B and E), and brownies-yellow (formula C). The smell of resulted formula were typical like the main ingredients for formula C,D,E and less typical for formula A and B. The softness of the for formula were quite soft for formula A and C, soft for formula B,D, and E. The *rendemen* of the formula showed formula C had the lowest rendemen (27.8%), and other formulas around 37% for formula A, B, E and the highest was formula D (39.4%). From five formulas, only formula C that showed significant difference for *rendeman*, that was 27.8% ($p<0.05$), while the other formulas did not show not significant difference, by around 37%.

Physical Characteristic of the Formula

a. BMC Formula Flour

Tabel 1. Physical Characteristic of BMC Flour Formula

Physical Quality	Formula-A	Formula-B	Formula-C	Formula-D	Formula-E
1) Color	creamy	Peachy white	Brownies yellow	creamy	Peachy white
2) Smell	Not specific	Not specific	Specific	Specific	Specific
3)Appearance (softness)	Quite soft	soft	Quite soft	soft	soft
4) Rendemen	37,9%[a]	37,2% [a]	27,8% [b]	39,4% [a]	37,5% [a]

b. BMC Formula Porridge

Tabel 2. Physical Characteristic of BMC Formula Porridge

No.	Physical Quality	Formula A	Formula B	Formula C	Formula D	Formula E
1	Color	Cream	Peachy White	Brownish-yellow	Cream	Peachy White
2	Smell	Less typical	Less typical	Typical	Typical	Typical
3	Texture/Thickness	Thick	Rather thick	Less thick	Thick	Rather thick
4	Taste	Rather tasteful	Rather tasteful	Rather tasteful	Tasteful	Tasteful
5	*Bulk density* (g/ml air)	0,26[a]	0,33[a]	0,46[b]	0,25[a]	0,27[a]
6	*Water absorption* (g/g air)	0,28[a]	0,41[b]	0,42[b]	0,33[c]	0,32[c]
7	Gelatinization *tempe*rature (°C)	61,50[a]	67,00[a]	83,50[b]	69,00[a]	69,50[a]

Formula A, B, C, D, E
Flour

Formula A, B, C, D, E
Porridge

Picture 1. The color of BMC Formula Flour and Porridge

Information: different letter notation on every row of physical quality showed that there were significant differences ($p<0.05$)

2. Nutrient Content of BMC Formula Flour

Tabel 3. Nutrient Content of BMC Formula (per 100g ingredients)

Nutrients	Formula A	Formula B	Formula C	Formula D	Formula E
Protein (%)	4,98 [a]	8,865 [b]	12,19 [c]	4,84 [a]	8,7 [a]
Fat (%)	0,465 [a]	0,655 [a]	5,715 [b]	1,095 [c]	1,205 [c]
Carbohydrate (%)	85,59 [a]	82,07 [b]	72,695 [c]	86,365 [a]	83,79 [b]
Total Ash (%)	1,845 [a]	0,885 [b]	2,06 [c]	1,97 [a]	0,705 [b]
Water (%)	7,11 [a]	7,525 [a]	7,34 [a]	5,715 [b]	5,845 [b]
Energy (kcal)	366,465 [a]	369,635 [a]	390,975 [b]	374,675 [c]	380,805 [c]

Information: different letter notation on every row of physical quality showed that there were significant differences ($p<0.05$)

3.Protein Quality of BMC Formula Flour

Tabel 4. Protein Quality of BMC Formula Flour

Protein Quality	Formula A	Formula B	Formula C	Formula D	Formula E
NPU	66,2 [a]	60,8 [b]	56,6 [c]	72,2 [d]	84,1 [e]
PER	0,969 [a]	2,640 [b]	4,153 [c]	0,905 [a]	5,272 [d]
SAA	78,3 [a]	68,4 [b]	66,1 [b]	85,5 [c]	91,8 [d]
MCT	84,6 [a]	88,9 [b]	85,5 [a]	84,4 [a]	91,6 [b]
PST	1,9 [a]	2,66 [b]	3,26 [c]	2,03 [a]	17,23 [d]
%NDPCal	4,26 [a]	5,33 [a]	7,83 [b]	5,05 [a]	14,90 [c]

4. Organoleptic Characteristic of BMC Formula Flour

a. BMC Formula Flour

Tabel 5. Percentage of BMC Formula Flour Acceptance based on Organoleptic Test (panelists = 25)

Organoleptic Characteristic	Formula A	Formula B	Formula C	Formula D	Formula E	Formula F
Color						
Accepted	72% [a]	92% [b]	36% [c]	68% [a]	96% [b]	64% [a]
Not accepted	28%	8%	64%	32%	4%	36%
Smell						
Accepted	80% [a]	56% [b]	20% [c]	44% [d]	48% [d]	92% [e]
Not accepted	20%	44%	80%	56%	52%	8%
Softness						
Accepted	100% [a]	92% [a]	4% [c]	92% [a]	100% [a]	40% [d]
Not accepted	0%	8%	96%	8%	0%	60%

Information: different letter notation on every row of physical quality showed that there were significant differences (p<0.05).

BMC Formula Porridge

Tabel 6. Percentage of BMC Formula Porridge Acceptance based on Organoleptic Test (panellists = 25)

Organoleptic Characteristic	Formula A	Formula B	Formula C	Formula D	Formula E	Formula F
Color						
Accepted	48% [a]	84% [b]	32% [a]	56% [c]	96% [b]	**96%** [b]
Not accepted	52%	16%	68%	44%	4%	4%
Smell						
Accepted	24% [a]	40% [b]	24% [a]	36% [b]	68% [c]	**88%** [d]
Not accepted	76%	60%	76%	64%	32%	12%
Texture						
Accepted	56% [a]	52% [a]	56% [a]	92% [b]	92% [b]	**88%** [b]
Not accepted	44%	48%	44%	8%	8%	12%
Purity						
Accepted	44% [a]	80% [b]	40% [a]	64% [c]	100% [c]	**84%** [b]
Not accepted	56%	20%	60%	36%	0%	16%
Taste						
Accepted	48% [a]	44% [a]	8% [b]	44% [a]	68% [c]	**84%** [d]
Not accepted	52%	56%	92%	56%	32%	16%

Information: different letter notation on every row of physical quality showed that there were signify significant differences (p<0.05).Accepted (very like and like); not accepted (very not like and not like); not accepted. Formula F is control formula (manufacturer).

5. Shelf life

Tabel 7. Identification of damage signs of BMC Formula Flour during storage

Condition	Week storage	Observed points	Formula A	Formula B	Formula C	Formula D	Formula E
Opened	8 weeks	Color	Faded	Faded	Faded	Faded	Faded
		Smell	Normal	Normal	Normal	Normal	Normal
		Fungi	(-)	(-)	(-)	(-)	(-)
		Appearance	Hard	Hard	Quite hard	Hard	Quite hard
Closed (Plastic wrapped)	8 weeks	Color	Normal	Normal	Normal	Normal	Normal
		Smell	Normal	Normal	Normal	Normal	Normal
		Fungi	(-)	(-)	(-)	(-)	(-)
		Appearance	Quite soft	soft	Quite soft	soft	soft

1. **Physical Characteristics of Formula Flour and Porridge**

The research results showed that physical appearances of formula flour were in cream color (formula A and D), peachy white (formula B and E), and brownies-yellow (formula C). The smell of resulted formula were typical like the main ingredients for formula C,D,E and less typical for formula A and B. The softness of the formula were quite soft for formula A and C, soft for formula B,D, and E. The *rendemen* of the formula showed formula C had the lowest rendemen (27.8%), and other formulas around 37% for formula A, B, E and the highest was formula D (39.4%). From five formulas, only formula C that showed significant difference for *rendeman*, that was 27.8% ($p<0.05$), while the other formulas did not show not significant difference, by around 37%.

The research also resulted in physical appearances of formula porridge. They were in cream color (formula A and D), peachy white (formula B and E), and brownies-yellow (formula C). The smell of the porridge was typical like the main ingredients for formula C, D, E and less typical for formula A and B. The texture or thickness of the porridge were thick for formula A and D, rather thick but soft in formula B and E, and also less thick for formula C. The thickness or texture were related to bulk density and water absorption score.

The research showed that Bulk density of density of formula B porridge which was the highest among others with 0.46 g/ml. The bulk density for formula A (0.26 g/ml), B (0.33 g/ml), D (0.25 g/ml), E (0.27 g/ml) did not show significant differences.

The research showed that water absorption in formula porridge was 0.28 g/g water up to 0.42 g/g. The lowest was in formula A and the highest was in formula C. There was a significant difference ($p<0.05$) for water absorption in formula A (0.28 g/g water) with formula B (0.41 g/g water) and C (0.42 g/g water), formula D (0.33 g/g water) and formula E (0.32 g/g water). Water absorption of formula B and C did not show significant differences, likewise for formula D and E.

Gelatinization *tempe*ratures for formula porridge in the research were 61.5 °C up to 83,5 °C, the lowest was in the formula A and the highest was in the formula C. There was a significant difference ($p<0.05$) for gelatinization *tempe*rature for formula B with 83,50 ^{o}C and it was the highest *tempe*rature among others. The gelatinization *tempe*ratures for A (61,5 ^{o}C), B (67 ^{o}C), D (69 ^{o}C), and E (69,5 ^{o}C) did not show significant differences.

Those physical characteristics were influenced by ingredients used in making the formulas; those were rice, cassava, and corn as carbohydrate sources, soy bean *tempe* and red bean as plant-based protein sources, catfish and nile tilapia as animal-based protein sources, also carrot and spinach as vitamin and mineral sources. The sugar and salt that was added also influenced color and taste of the formula.

Soy bean *tempe* is a food from fermented soy bean using *Rhizopus sp* fungi. *Rhizopus sp* mold in the growing process produces some enzymes that can hydrolyze complex substances into more simple substances so that *tempe* becomes more easily to digest and higher in nutrition than soybean (Astawan, 2008). *Tempe* is a cheap protein source and it is easy to found. Nutritional value of protein in *tempe* is not far different from other protein sources like meat, fish, and egg (TKPI).

2. Nutrition Content of Formula Flour and BMC Formula Porridge

This research showed that the lowest protein content was in Formula A and D while the highest one was in Formula C. In addition, formula B and E have the same protein content. The other result showed that the lowest fat content was in Formula A and B while the highest one was in Formula C. In addition, formula D and E have the same fat content. The lowest carbohydrate content was in Formula C and the highest one was in Formula A and D while Formula B and E have the same carbohydrate content. The lowest mineral content or ashes was in Formula B and E while the highest one was in Formula C. Formula A and D have the same mineral content or ashes. The energy content was in between 266 kkal up to 390 kkal 100 g formula. The lowest energy content was in Formula A and B while the highest one was in Formula C. Formula D and E have the same energy content.The formula resulted from this research was the dried food ingredients, so they have low water content which was 5 % up to 7 %. Formula A, B, C have the same water content (± 7%) while Formula D and E also have the same water content (± 5%).

From this research, the protein, fat, carbohydrate, ashes, water and energy were identified with these following explanation: The protein content did not appear to be significantly different for formula A (4,98%), D (4,84%) dan E (8,7%). The protein content for those three formula were significantly different p<0,05) with formula B (8,865%) and formula C (12,19%).

The fat content did not appear to be significantly different for formula A (0,465%) and B (0,6557%). There was not also significant difference on the fat content between formula D (1,095% and formula E (1,205%). The fat content in formula A and B as well as D and E were significantly different (p<0,05) to formula C (5,715%).

The carbohydrate content in formula A (85,59%) and formula D (86,365%) did not appear to be significantly different. The same case occurred in formula B (82,07%) and formula E (83,79%). The carbohydrate content in formula A and D as well as B and E were significantly different (p<0,05) to formula C (72,695%).

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The research conducted on the making snacks with the treatment of corn starch and cassava starch (25:75) and the addition of 10% catfish flour is the best treatment based on texture test, the development volume and hedonic test (preference) of the consumers. The best snack with the treatment of corn starch and cassava starch (25:75) with the addition of 10% catfish flour has characteristics of 9.5% water content, 6.64% ashes content, 8.20% fat content, 7.96% protein content and 67.7% carbohydrate content. (Purwandani, L., Eraning Indrastuti, and Muflihah Ramadia, 2013). The research on the

effects of pre-gelatinization on Inocarfus fagifer Flour shows that there are no significant differences in the decrease in ashes, proteins, fats, carbohydrates, and food fibers (Wijanarka, 2017).

3. The Quality of the Protein on BMC Formula Flour

This study resulted in five formulas with the Protein Quality characteristics of NPU, NPR, PER, SAA, MCT, PST, and % NDPCal. For the NPU Protein Quality the highest was Formula E and the lowest was Formula C.

The minimum standard NPU value is 60. Therefore, only Formula C which did not meet the requirements. The highest NPU value was formula E. The higher the NPU showed that the formula had better protein quality. The five formulas were known to have significant differences ($p < 0.05$) for the NPU value. The value of NPU formula A was (66,2), B was (60,8), C was (56,6), D (72,2) and E was (84,1).

The lowest PER value was Formula A and D and the highest was Formula E. The minimum standard PER value is 2.1. In that regard, formula A and D did not meet the requirements. The higher PER indicated that the formula had better protein quality. The highest PER value was formula E, which was 5.272. There was no difference in the PER value in formula A (0.969) and D (0.905). The two formulas differed significantly ($p < 0.05$) with formula B (2,640), formula C (4,153), and formula E (5,272).

The lowest SAA value was Formula C and B, the highest value was Formula E. The minimum standard of SAA value is 65. Therefore, all formulas met the requirements. From the five formulas, the highest SAA was Formula E and this showed a significant difference ($p < 0.05$) with Formula A (78.3), B (68.4), C (66.1), and D (85,5). The higher the SAA indicated that the formula had better protein quality.

The lowest MCT value was Formula A (84.6), C (85.5), D (84.4) and all three showed significant differences. Formula E (91.6) and B (88.9) were the formulas with the highest MCT values and both showed no significant differences. Formula A, C, and D were significantly different from Formula B and E ($p < 0.5$) for MCT values. The higher the MCT indicated that the formula had better protein quality.

Mixed Foods Ingredients (BMC) are aranged based on the composition and nutritional content of BMC. They include the content of energy, protein, fat, carbohydrate, and Amino Acid Score. BMC is specifically intended for Under-five (children aged 1 - 5 years), so the composition of nutrient content is also adjusted for the children at this age. The nutritional content of each 100 grams of BMC is the energy with a minimum value of 360 kcal, 20% protein, 25% fat of the total energy, and amino acid score in the minimum value of 65, Net Protein Utilization (NPU) = 60, Protein Efficiency Ratio (PER) = 2 , 1 and NDPCal <7.5%.

The research on the nutritional status of Under-five with formula 100 showed that there was an effect of giving formula 100 to the nutritional status of children in the Sukoharjo Community Health Center area ($p = 0.001$) (Murwati and Tuti Devianti, 2016). The research (Puryanti, A., 2010) using WHO Formula F 100 Supplement showed that transfusion saturation increased by 13.02 + 7.87 in the group given standardized WHO F100 supplement, while in the group with *tempe* flour substitution, the saturation increased by 12.47 + 5.317. There was no significant difference in weight gain between the two groups. This shows that the substitution with soybean *tempe* can have the same effect with standardized WHO F100 supplements for the children with malnutrition.

4. Organoleptic Characteristics of Formula Flour and BMC Formula Porridge

The product is accepted if the panelists stated that they really like or like it. The product is rejected if the panelists stated that they really do not like or do not like it. In this acceptance assessFlour in Formula B (92%), C (36%), E (96%). In regard to this, Flour Color in Formula C was the least accepted formula. Compared to Flour Color in comparison formula which was Formula F with 64% acceptance, Flour in Formula A, B, D, and E had better Flour Color acceptance. Therefore, it is possible to develop them in terms of acceptance to the color of formula flour. The flour color in formula was greatly influenced by the color of the ingredients of the formula.

The acceptance of panelists towards the Smells of Flour IN Formula in this study showed that the lowest acceptance was Formula C (20%) and the highest was Formula A (80%). The acceptance of Flour in Formula B was (56%), D was (44%), and E was (48%). There were significant differences ($p < 0.05$) acceptance of Flour in Formula A (80%), B (56%), C (20%), D (44%). There was no significant difference in the acceptance of the smells of Porridge in Formula D and E. Compared to the smell of the Flour in Formula F with acceptance of 92%, Flour in Formula A had better and possible smells of Flour acceptance.

The panelists' acceptance of the Porridge Color Formula in this study showed the lowest acceptance was Formula C (32%) and the highest were Formula E (96%) and B (84%). There were no significant differences in the acceptance of Porridge Colors in Formula A (48%) and C (32%) as well as B (84%) and E (96%). There were significant differences ($p < 0.05$) in the acceptance of Porridge Color in Formula A (48%) and C (32%) with D (56%), and B (84%), and E (96%). Based on this, Porridge Color in Formula C was the least accepted formula. Compared with Flour Color in Formula F with 96% acceptance, Formula B and E Flour had better acceptance of Formula Porridge Color. They are possible to be developed in terms of acceptance of Porridge Color Formula.

The color of food products is one of the attractions, so the society will consume the product. According to Winarno (2000), one of the quality determinations of food is the color factor. The effect of roasting temperature on the color of a food is caused by the presence of dark colors arising from non-enzymatic browning reactions or maillard reactions.

Brownish green in cookies through the Corn Biscuit Formulation, which is produced after the roasting process is the result of a non-enzymatic browning reaction or maillard reaction. Browning reactions can be defined as sequences of events that begin with the reaction of amino groups in amino acids, peptides, or proteins with glycosidic hydroxyl groups on sugar and end with the formation of brown nitrogen polymers or melanoidin. Therefore, at high temperatures reaching 100 ° C, it will result in the color of brown occurred on the surface of the material (Deman, 1997 in Gracia et al., 2009).

The smell arise due to the smell of substances that are volatile. The protein contained in the ingredients will be degraded into amino acids by the presence of the heat. The reaction between amino acids and sugar will produce a smell, while the fat in the ingredients will be oxidized and broken down by the heat, so some of the active ingredients will be generated by process will react with amino acids and peptides to produce smells (Mutiara, 2012).

The smell of food determines the taste of the food. In this case, the smell has more to do

with the five sensory smells. New smell can be recognized if the steam is formed. The smell component molecules must be able to touch the olfactory cell cilia to be transmitted to the brain in the form of electrical impulses by olfactory nerve endings (Winarno, 2000). The panelists' acceptance of the Porridge Formula Texture in this study showed that the lowest acceptance were Formula A, B, and C, which was 56% and the highest was Formula D and E (92%). There was a significant difference ($p < 0.05$) acceptance of Porridge Texture in Formula A, B, C with Porridge in Formula D and E. Compared to comparison Formula which is Formula F with the acceptance of 88%, only Formula D and E had better acceptance of Porridge texture.

According to Fellows (1990) in Dewi, F.K., the texture of food is mostly determined by the content of water, fat, carbohydrates (such as starch, cellulose) and protein. Changes in texture are caused by loss of fluid, reduced fat, formation or the breakdown of emulsions, hydrolysis or polymerization of carbohydrates, and hydrolysis or coagulation of proteins. According to Pangaribuan (2013), the higher the gluten in the material is, the higher the ability to absorb water on the surface of the material, so the water content of the material gets higher resulting more crispy texture.

This study showed that the panelists' acceptance toward the lowest Clarity of Formula Porridge was Formula A (44%) and C (40%) and the highest was Formula E (100%). The acceptance of the Clarity of Porridge in Formula B was 80% and D was 64%. There was significant difference ($p < 0.05$) in the acceptance of the Clarity of Porridge and the highest was Formula E (68%). The acceptance of the taste in Formula A was 48%, B was 44%, C was 40%, and D was 44%. There was a difference made by the acceptance of the Porridge in Formula A, B, D. There was a significant difference ($p < 0.05$) in the acceptance of the Taste of Porridge in Formula A, B, D with the Taste in Formula C, and with the Prridge in Formula E. Compared to the manufacturer's formula which was Formula F with the acceptance of 84%, only the Formula Porridge was accepted.

According to Matz (1978) in Millah (2014), sugar is used as a sweetener that can arise the taste in the product. Taste is an important factor to determine whether the food product is accepted. According to Kartika et al (1988), the taste of a food is the result of cooperation of several senses: the senses of sight, smell, hearing and touch. Taste is a factor that determines the level of consumers' preference for food products. The attributed tastes include sweet, sour, salty, and bitter.

5. Shelf-Life

The shelf-life of BMC formula flour is identified based othe the signs of physical damage. It includes colors, smells, fungus, and appearance during a storage period of 8 weeks. The storage was done in 2 conditions: open and closed in the plastic packaging. The research showed that during 8 weeks of storage, the damage of formula flour was not identified both for open or closed storage.Based on the identification of physical characteristics (color of flour and porridge, smell of flour and porridge, softness of flour, texture of porridge, flavor of porridge, bulk density, water absorption and gelatinization temperature of porridge, nutrient content (protein, fat, carbohydrate, ash, water and energy), Protein Quality (NPU, NPR, PER, SAA, MCT, PST, and NDPCal), Organoleptic or Acceptance Properties (flour and pulp color, smell of flour and porridge, flour softness, porridge texture, clarity of porridge, flavor of porridge), and shelf-life, the formula that is possible to be developed at the sequence is Formula E, C, B,D, A.

Conclusion

This research obtained five BMC formulas with the local foods ingredients and the most possible formulas to be developed based at the sequence is Formula E based on the physical characteristics, nutrient content, protein quality, the acceptance level, and the shelf-life. Formula E consists of rice, soy bean *tempe,* nile tilapia, carrot, sugar, and salt.

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