Development of Complimentary Food from Soy Bean and Soy by –Products

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ABSTRACT

Shortage of Animal protein has led Researcher to quest for plant protein for children transition to Adult survival. Although total breastfeeding is more convenient and advocated for childhood growth from ages 1 to 6 months. The study aimed to examine the Complimentary foods that was developed from soy bean and soy by –product. The Plant based complimentary food was formulated as follows soydehulled 10 % (SD), Whole soy10% (SW), soymilk10%(SM) and control dietary(CD) and basal (BA100).

The study considered Growth Response, the weight of the endocrine, the nitrogen retention of the experimental animal the nitrogen retention of the experimental animal The Outcome of the experimental Animals fed with (SD), (SW), (BA), (SM) and control dietary(CD) basal (BA100%), shows weight gain by 52.47g, 23.99g, 25.57g,38.95g and basal diet loss weight by -0.38g respectively. The performance revealed that plant based complementary foods has potential to promote growth was compared favourable with control dietary but the basal diet (negative control) could not promote growth because it is deficient in amino acid such as tryptophan and lysine. In conclusions plant based complementary food is cheap, available and could replace animal based food that has been linked with some medical ailments such as, c, osteoporosis, high blood pressure a cholesterol and childhood obesity. Soy Plant protein based contain low calories, carbohydrate, and free fatty acid similar to fish protein which is important for people who are allergic to cow protein milk and lactose.

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Introduction

Soybean (Glycine (max (L.,) is one of the most important oil crops of the world which also has tremendous importance as a food legume. Cow’s milk protein allergy (CMPA), also known as cow’s milk allergy (CMA), is one of the most common food allergies in babies, and usually appears before 1 year of age. Milk beverage is high in potassium, calcium and vitamin D, three essential nutrients that are under consumed by most Americans. It is also a good source of zinc, magnesium and B-complex vitamin. Commercial powder milk associated with commercial powder milk link with the danger commercial powder milk [1]. Lactose intolerance milk. Food allergies occur when the body’s immune system (the body’s own defense mechanism) responds abnormally to certain foods. Usually, the immune system helps the body to fight against harmful things like pathogens. For people with food allergies, the immune system incorrectly identifies certain food components as harmful and produces an inappropriate response. This leads to the unpleasant, and sometimes life-threatening, signs and symptoms associated with allergies.

More than 120 foods are known to cause food allergies. According to International Institute of Tropical Agriculture Soy bean is an important source of high inexpensive protein 40% and oil 20 % [2]. Soymilk contain protein and fibre and has used as substitute for a cow’s milk for infant and young children. Animal study studies especially on Soymilk are good source of various vitamin and minerals, including molybdenum vitamin K1 (phyloquinone), folate vitaminB9, considered particularly important during pregnancy. The disadvantage of soy bean and by product is copper, manganese is deficient in soybean Soy bean is a good source of omega-3and 6 fatty acid similar to those found in fish oil and are cholesterol free and are excellent source of dietary source of both soluble and insoluble fibre. [3] It has been reported that Soy bean and Soy- product are also used as low-cost substitute texture vegetable protein used for over 50 years as a way of extending ground beef without reducing its nutritional value. Some Studies has revealed that taken soy bean and soy by –products could reduce Osteoporosis which is characterized by reduced bone density and an increased risk of fractures, especially in older women. Consumption of soy products may reduce the risk of osteoporosis in women who have undergone menopause.

Ethical Consideration

Permissions were sorted from Ethical committee of Obafemi Awolowo University, Ile-Ife, Nigeria, to use fifty Albino Rat for experimental analyze on soy bean and soy by –products.

Materials

Fifty white wister strain albino rats, metabolic cage, casein, The Plant based complimentary food/supplement dietary was as follows Soy dehulled (1), Whole Soy(2), Soymilk(3) casein(4)
Methods
Fifty white wister strain albino rats was purchased from animal breeding enter Obafemi Awolowo University, Faculty of Health Science Ile-Ife, Nigeria. The weights of the experimental animals were ranged from 50.78g-50.95g. They were six weeks old. The experimental animals were randomly selected weighed and distributed into five groups of ten per group and were caged in a metabolic cage fitted with a feeding bottle and plate. They were fed on 10% casein for seven days to acclimatize them to the new environment. The experimental animals were weighed again reweighed on three decimal analytical mettler balances and distributed into six groups of ten per group. 10g of supplements dietary were supplied daily. The leftover of the dietary samples were carefully recorded and the weights were noted. Weight gain/loss of the experimental animals was taken every three days and was graphically sketched as in figure 1. At the end of the experiment, which was twenty-eight days, the experimental animals were anesthetized sacrificed. The organs collected from the animal were heart, kidney and liver were fixed immediately in 10% formyl saline for further experiment such as nitrogen retention [4-11].

Results and Discussions

Table 1: Composition of Soy Bean and Soy by –Products

<table>
<thead>
<tr>
<th>Dietary</th>
<th>Protein</th>
<th>Fat</th>
<th>Moisture</th>
<th>Fibre</th>
<th>CHO</th>
<th>Dry Matter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD</td>
<td>38.56</td>
<td>15</td>
<td>2.8</td>
<td>3.2</td>
<td>40.44</td>
<td>97.2</td>
</tr>
<tr>
<td>SW</td>
<td>40.72</td>
<td>18</td>
<td>2.5</td>
<td>4.4</td>
<td>97.5</td>
<td></td>
</tr>
<tr>
<td>SM</td>
<td>25.86</td>
<td>15.50</td>
<td>2.8</td>
<td>3.5</td>
<td>97.2</td>
<td></td>
</tr>
<tr>
<td>CD</td>
<td>18.64</td>
<td>15.50</td>
<td>2.8</td>
<td>3.2</td>
<td>96.8</td>
<td></td>
</tr>
<tr>
<td>BA</td>
<td>-</td>
<td>2.5</td>
<td>2.8</td>
<td>4.6</td>
<td>95.4</td>
<td></td>
</tr>
</tbody>
</table>

The protein contents in sample SD, SW, SM CD and BA ranged between – 40. 72, Fat was ranged from 0.80 to 18, Moisture was ranged from 2.5 to 2.8, fibre ranged from 3.2-4.6, CHO ranged from, and Dry Matter ranged from 95.4 to 97.2 respectively.

Figure 1: Growth Response of Animal Experiment for 28 days

Figure 2: Weight gained for SD, SW, SM, CD, and BA was 52.47g, 23.93g 25.91, 38.95 and-0.38 respectively [8].

Figure 3: Showcase the Weight of The Internal Organ of the Experimental Animals

Figure 4: Presents the Nitrogen Retention of the Experimental Animal
Soy bean is a good source of oil of omega-3and 6 fatty acid similar to those found in fish oil, high protein and are cholesterol free and are excellent source of dietary of both soluble and insoluble fibre. It has been reported that Soy bean and Soy- product are also used as low-cost substitute .Soy protein has no cholesterol gluten and lactose free phytochemicals soy product contain sucrose such as sucrose as the basic disaccharide which breakdown into glucose and fructose.

Soy bean has been reported to be high in protein, good source of omega-3and 6 fatty acid similar to those found in fish oil and are cholesterol free and are excellent source of dietary of both soluble and insoluble fibre. It has been reported that Soy bean and Soy- product are also used as low-cost substitute to many product. Soy protein has no cholesterol gluten and lactose free phytochemicals soy product contain sucrose such as sucrose as the basic disaccharide which breakdown into glucose and fructose [4-31].

**Conclusion**

Soy - Plant protein based is inexpensive, available contain low calories, carbohydrate, fat fatty acid is important for people who are allergic to cow protein and lactose. Soy protein has no cholesterol gluten and lactose free phytochemicals soy product contain sucrose such as sucrose as the basic disaccharide which breakdown into glucose and fructose. A product of lactose breakdown, soy based infant formula can safely replace breastmilk in children with galactosemia, soybean contain galactose like lactose free Soybean is heap, available and nontoxic soy bean and soy by –products could replace animal based complementary dietary food that has been linked with some medical ailments such as, morbidity and mortality cow’s milk allergy, osteoporosis, high blood pressure a cholesterol and child hood obesity. Soy Plant protein based is inexpensive, contain low calories, carbohydrate, and has free fatty acid similar to fish. Soy bean and soy by --products could be alternative food to children who are allergic to cow protein and lactose.

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**References**