QUALITATIVE ANALYSIS AND QUANTITATIVE ESTIMATION OF SOME PHYSICO-CHEMICAL PARAMETERS OF DIFFERENT BRANDS OF BABY MILK POWDER

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Abstract

This research paper was carried out to evaluate and detect some qualitative and quantitative parameter for different Baby milk powder samples. The qualitative parameters like, Protein, Chlorine, Calcium and starch and quantitative parameters like Moisture, Density, pH, Sugar, K+ and Na+ by FES and concentration of k+ and Na+, Iron by AAS are evaluated.

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Keywords: Qualitative analysis, Quantitative estimation, Baby milk powder.

Introduction: Is a manufactured food designed and marketed for feeding to babies and infants under 12 months of age, usually prepared for bottle-feeding or cup-feeding from powder (mixed with water) or liquid (with or without additional water). The U.S. Federal Food, Drug, and Cosmetic Act (FFDCA) defines infant formula as "a food which purports to be or is represented for special dietary use solely as a food for infants by reason of its simulation of human milk or its suitability as a complete or partial substitute for human milk" (1).

Uses of milk: Baby powdered milk is use in the case of insufficient breast milk or mother infection and taking medication or in the inability to breastfeed the baby. Also it use when the mother not in the house so that is complementary food for mothers milk (2).

Types of milk:

Industrial milk allocated natural for infants: a variant of the usual neutral breast feeding when the baby intact.

Species of special therapeutic formula: which is given in certain medical conditions afflict baby. Are fed infant allocated for infants from birth industrial milk until the end of the first year of life and is prepared to start from cow's milk, where conducted by the most formula closer to breast milk, and it should be noted varieties intended for infants formula no disparity with offer of nutrients according to the World Ingredients.

1. Milk first stage: given in the period extending from birth until the sixth month of life.
2. Milk Phase II: given in the period, which extends from the sixth month until the end of the first year of life.

3. Milk Phase III: given from the age of Year. There is a special milk for low birth weight: given from birth until the child becomes the weight of to 2.4Kg (2).

Iodine: Iodine is essential to the production of thyroxin hormone secreted by the thyroid gland, which regulates the growth and function of nerves. Increase iodine leads to overwork the thyroid glands, skin rashes, mouth ulcers and swelling of the salivary glands. Iodine deficiency leads to goiter.

The Potassium: Potassium helps the human missals to stretch and shrink, and enable passing nerves pulses along nerves system. It is play a significant role in managing human body pressure and heart pulse. Potassium shortage in human body causes unbalanced heart pulse, weakness, lowering blood pressure and skin dryness. In contrast, a rubbed increases in the potassium may cause missals weakness and throughout.

Sodium and Chlorine: Both sodium and chlorine helps the human cells to save the hydrogen power base and to manage the fluid balance inside and outside them. The imbalance in any of these two elements may cause an imbalance in human blood pressure. The shortage in sodium may cause headache, dryness and arms and legs missals shrinking.

Iron: Is one of the most important compound metals in the human body as an adult people have 5 g of it, where 60 % of are concentrated in the blood and liver. Iron deficiency leads to anemia, skin dry, pale skin color, ideal and osteoporosis, while and children it may lead to growth retardation. Iron increase lead to toxicity and increase the
**Calcium:** Calcium important of returning to the basic role it plays in bone formation at early age. Calcium deficiency leads to osteoporosis and weakness of bones, teeth and muscle”[3].

**Results and Discussion:**

**Table 1:** Qualitative and Quantitative parameters of Baby milk podwe

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Baby milk poder</th>
<th>Sample 1</th>
<th>Sample 2</th>
<th>Sample 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quantitative</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td></td>
<td>7.15</td>
<td>6.96</td>
<td>7.05</td>
</tr>
<tr>
<td>Moisture (%)</td>
<td></td>
<td>1.50</td>
<td>0.97</td>
<td>0.50</td>
</tr>
<tr>
<td>Density (g/ml)</td>
<td></td>
<td>0.12</td>
<td>0.12</td>
<td>0.12</td>
</tr>
<tr>
<td>Glucose (Brix %)</td>
<td></td>
<td>9.0</td>
<td>5.0</td>
<td>4.0</td>
</tr>
<tr>
<td>K⁺(ppm)</td>
<td></td>
<td>37.0</td>
<td>44.0</td>
<td>19.0</td>
</tr>
<tr>
<td>Na⁺(ppm)</td>
<td></td>
<td>34.0</td>
<td>42.0</td>
<td>17.0</td>
</tr>
<tr>
<td>Fe (ppm)</td>
<td></td>
<td>9.20</td>
<td>5.26</td>
<td>8.10</td>
</tr>
<tr>
<td><strong>Qualitative</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protein (Action with HNO₃)</td>
<td></td>
<td>Appearance of Light yellow ppt</td>
<td>Appearance of Thick yellow ppt</td>
<td>Appearance of very Light yellow ppt</td>
</tr>
<tr>
<td>Chlorine (Action with AgNO₃)</td>
<td></td>
<td>Appearance of cloudy ppt</td>
<td>Appearance of white PPT</td>
<td>Appearance of white PPT</td>
</tr>
<tr>
<td>Calcium (Action with Ammonium Oxalate)</td>
<td></td>
<td>Very Less turbid</td>
<td>Less turbid</td>
<td>More turbid</td>
</tr>
<tr>
<td>Starch (Action with Iodine)</td>
<td></td>
<td>Thick violet</td>
<td>Light violet</td>
<td>Very light violet</td>
</tr>
</tbody>
</table>

![Figure 1: Physico-chemical parameters of Baby milk powder](image)

**Conclusion:** Among the qualitative and quantitative analysis report out of the three samples of milk powder, sample 2 has more Sodium and potassium levels than other samples

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**References:**

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