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# **A STUDY OF THE EFFECT OF PUMPKIN (UGU-*TELFIRA OCCIDENTALS*) MILK AND RAW EGG MIXTURE IN THE TREATMENT OF ANAEMIC PREGNANT WOMEN IN A RURAL AREA.**

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## **Abstract**

Thirty anaemic pregnant women aged  $29.5 \pm 6.5$  years with baseline mean packed cell volume (PCV) of  $20.8 \pm 2.0\%$  were studied. Freshly prepared Ugu (pumpkin-*Telfaira occidentalis*) mixture containing ugu (pumpkin) fluid, raw content of egg and peak evaporated unsweetened milk was administered orally to each of the pregnant women three times in a day for seven days. Packed cell volume was carried out by capillary tube method. There was an observed significantly mean value of PCV ( $29.5 \pm 2.2\%$ ) a day following the administration of the mixture ( $P < 0.05$ ). The use of the mixture in the treatment of anaemia would reduce exposure to the risk of HIV/AIDS and Hepatitis B infections that could occur with blood transfusion.

## **Introduction**

Nutrition during pregnancy is significant, physically and psychologically, for both the mother and the infant *in-utero* (Davis and Rubin, 1992; WHO, 1996; DeMaeyer and Adiels-Tegman, 1985). Worldwide anaemia is the commonest red blood cell disorder. It occurs when the concentration of hemoglobin falls below what is normal for a person's age gender and environment resulting in the oxygen-carrying capacity of the blood being reduced (Cheesbrough, 2002). Hemoglobin levels fall in normal pregnancy due to an increase in plasma volume (Davis and Rubin, 1962 and Robertson, 1969). Anaemic persons are easily fatigued, have little energy to work, are often breathless on exertion, have palpitation and experience headaches and dizziness. There is also severe pallor of the skin, mucous membranes and conjunctivitis (Cheesbrough, 2002; and Flores, 1990). Pregnant women with untreated anaemia are at increased risk of dying during or following childbirth (particularly when complicated) or giving birth prematurely or to an infant with low birth weight (Cheesbrough, 2002).

There is also an increased risk of puerperal infection (Flores,1990,andBennett and Brown,1999 ) Anaemia is present when the haemoglobin concentration falls below 11.0g/dl in pregnant women (WHO,1996,DeMaeyer and Adiels-Tegman,1985;Cheesbrough,2002;Bennett and Brown,1999 and WHO,1996[NUT/96,12] ) Anaemia is described as mild when the haemoglobin is between 10g/dl and 11g/dl, moderate when it is between 7.0-10.0g/dl and severe when below 7.0g/dl (WHO,1996;DeMaeyer and Adiels-Tegman,1985 and WHO,1996[NUT/96,12] ).

The main causes of anaemia in tropical countries are malnutrition including iron, folate and protein deficiency, parasitic, bacteria and viral infections, inherited haemoglobinopathies, Glucose 6 phosphate Dehydrogenase (G6PD) enzyme and obstetric complications (Cheesbrough ;2002 ). Anaemia in pregnancy may be physiological or due to iron deficiency, folic acid deficiency, vitamin B12 deficiency, haemoglobinnopathies and other rare inherited disorders (Bennett and Brown,1999).

Local studies have shown that fluted pumpkin (*Telfaira occidentalis*) leaves popularly called “ugu” is efficient in building up or renewing cells and tissues as well in the treatment of anaemia (Ukwuoma and Mauaya,2005 and Beck,1980 ). The incidence of anaemia in pregnancy reported by Aluka et al (2001) was 29%, with the vast majority (97.6%) having mild anaemia. According to Aluka et al (2001), the anaemic pregnant women were in the age range of 26-30years and most of the patients were traders and the most commonly associated condition was nutritional deficiency followed by malaria. This study was designed to measure the relevance of the nutritional value of Ugu (*Telfaira occidentalis*) leaves, milk and raw content of local egg mixture in the treatment of anaemic pregnant women in rural communities.

## Materials and methods

### Subjects/ study area

Thirty out of fifty anaemic women with normal pregnancy aged  $29.5 \pm 6.5$  years of with mean haematocrit [packed cell volume (PCV)] of  $20.8 \pm 2.0\%$  attending antenatal clinic of Baptist Medical Center, Saki – Oyo state were successfully monitored and studied for the study. Twenty of the fifty women were intolerant to the mixture because most of the twenty subjects presented with diarrhoea and vomiting after administration.

### Extraction of ugu (pumpkin) fluid and the preparation/ administration of ugu mixture.

The leaves of “ugu” (pumpkin) plucked from the stem were thoroughly washed in a clean and sterile water. The water was then drained from the leaves .The leaves were also, at this stage, grinded using electric grinder popularly known as blender. The grinded “ugu” (pumpkin) leaves were pressed on a filter to obtain the fluid portion of the vegetable plant as the extract. Two hundred milliliters (200mls) of the undiluted liquid extract of the ugu (pumpkin) leaves was mixed with a tin (150mls) of peak evaporated unsweetened full cream milk (produced by Friesland Coberco Dairy Foods, Pstuyvesan-tweg, 18937AC Leeuwarden, Holland). To the above mixture was also added a raw

content of an egg of a local chicken. The mixture was stirred thoroughly and administered. The above procedure was observed daily for each of the test subjects because the ugu mixture has to be freshly prepared. The whole of the freshly prepared ugu mixture as described was administered orally to each of the pregnant women in three divided doses within one day (i.e. taken three times in a day). The mixture preparation and administration on daily basis was repeated for each of the pregnant women for seven days. They were closely monitored and the ugu mixture was well tolerated by them.

### **Blood Samples**

Five milliliters of venous blood was obtained from each of the thirty pregnant women recruited and preserved for the determination of packed cell volume (PCV) in NaEDTA anticoagulated bottle. The collection of venous blood from the women was carried out before the administration of the ugu (pumpkin) mixture, a day after the last day the administration of the mixture and after thirty days of the administration of the mixture??.

Packed cell volume of all the blood collected from each of the pregnant women was determined by capillary tube method described by Chesbrough (2002)

Data were analysed with aid of Students t-test as described by Frank and Jones(1994).

Approval letter was obtained from ethical committee of the institution.

### **Results**

The observation of this study is as shown in table 1. There was a higher mean packed cell volume (PCV) of  $29.5 \pm 2.2\%$  observed in the pregnant women a day after the last day of the administration of the ugu (pumpkin) mixture compared with the packed cell volume of  $20.8 \pm 2.0\%$  observed in the women before the administration of the ugu mixture. The increase in the PCV was statistically significant ( $P < 0.05$ ) Higher significant mean PCV value of  $27.4 \pm 1.9\%$  was observed in the woman thirty days after the one week administration of the ugu (pumpkin) mixture than the packed cell volume of  $20.8 \pm 2.0\%$  obtained from the women before the administration of the mixture with  $p < 0.05$ .

Lower significant mean value of  $27.4 \pm 1.9\%$  was observed in the women thirty days after the administration of the ugu mixture than the packed cell volume of  $29.5 \pm 2.2\%$  observed a day after the last day of the administration of the ugu mixture with  $P < 0.05$

### **Discussion**

The observed higher significant mean value of packed cell volume in the pregnant women after the administration of Ugu (pumpkin) mixture compared with the packed cell volume obtained from the women a day following the last day of a week administration of Ugu (pumpkin) mixture can be attributed to the fact that the mixture is

very rich in iron, folic acid, vitamin B12 and protein, which are active ingredients required for blood formation - erythropoiesis (Cheesbrough, 2002 and Beck, 1980)

The higher significant mean value of PCV observed in the pregnant women studied a day following a week administration of the mixture than the observed mean packed cell volume after thirty days following the last day of the administration of the mixture is consistent with the fact that there is a rapid increase in blood formation or haemoglobin synthesis at the initial stage following inducement with a drop in the haematocrit due to disproportionate massive increase in plasma volume relative to red blood cell [a common physiological alteration in pregnancy] and increase in foetal needs. (Cheesbrough, 2002; Howard, 1997 and Kirsty, 2003). The increased packed cell volume observed after the administration of the mixture can also be attributed to high iron and folic acid content of fresh Ugu green vegetable leaves (Beck, 1980). Egg and milk contain Vitamin B12 described as anti-anaemic factor by (Beck, 1980).

**Table 1:** Effect of ugu on the PCV of pregnant women

	X $\pm$ SD	n	't' values	'p' values
Mean PCV Observed before the administration of Ugu (pumpkin) mixture	20.8 $\pm$ 2.0%	30		
Mean PCV observed a day following the last day of the administration of the Ugu mixture	29.5 $\pm$ 2.2%	30	16.1	P < 0.05
Mean PCV observed before the administration of Ugu mixture	20.8 $\pm$ 2.0%	30	13.2	P < 0.05
Mean PCV observed in the women thirty days following a week administration of the mixture	27.4 $\pm$ 1.9%	30		
Mean PCV a day following the last day of administration of the mixture	29.5 $\pm$ 2.0%	30	4.0	
Mean PCV observed in the women thirty day following a week administration of the Ugu mixture	27.4 $\pm$ 1.9%	30		P < 0.05

Milk and egg are also very rich in protein essential for erythropoiesis (Cheesbrough, 2002 and Beck, 1980). These nutritive value of the mixture accounted for the rise in the packed cell volume of the anaemic pregnant women studied after the administration of the mixture. This study, therefore, suggests an alternative means for increasing the level of haematocrit of anaemic pregnant women with packed cell volume level of 18% and

above. The use of this mixture in anemia would contribute to a reduction of the risk of HIV/AIDS in hospital environment.

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