

BIOFORTIFICATION OF BISCUITS WITH GARDEN CRESS SEEDS FOR PREVENTION OF ANAEMIA

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ABSTRACT

To judge the extent of prevalence of anaemia among adolescent girls the blood sample was analyzed. A total sample of 500 adolescent girls of 13-15 years and 16-18 years was selected from urban (200), rural(200) and tribal (100) areas of Marathwada region of Maharashtra state. Supplementary foods like iron rich biscuit were developed using locally available iron rich food stuffs i.e. garden cress seeds and rice flakes. Prepared biscuits were tested for its acceptability by panel members. The highly accepted Variation (III) was analysed for its proximate composition, minerals like calcium, phosphorous and iron. These biscuits were also analysed for antinutrients. The hemoglobin values of selected adolescent girls were ranging from 8.7 to 10.96 mg/100ml. When compared with standard values all girls were falling below the normal level. The least hemoglobin count was noticed in tribal and low income group girls. Nearly 50 percent of girls were suffering with some or the other degree of anaemia. Among all the variations of biscuits, variation III was highly accepted for all sensory characters. It contained 29.61 gm of fat, 0.99 gm fibre, 2.8 gm protein and 6.11 gm minerals. The major minerals such as calcium and phosphorous were low in developed products. However the iron content was 13.16 mg/100gm and ionisable iron content 3.22 gm/100gm, whereas percent bioavailability of iron was found to be 12.0 mg/100gm. Further the tannin content was 148.04mg, 2.34mg of phosphorous phytate and 18.72mg of oxalic acid reflecting less percent of antinutrient being present in developed garden cress seed biscuits.

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It is an ironic fact that in a country like India, where woman was traditionally worshipped as great mother, goddess and in which matriarchal society flourished in the past, the roles of woman in the drama of present social development was disappointingly smiled in scope and significance (Anonymous, 2000). If the nation demands healthy and dynamic citizen, it is necessary to improve the overall status of adolescent girls.

The most crucial segment of our population from the point of view of quality of our future generation is today's young girls who are just on the threshold of marriage and motherhood (Mane *et al.*, 1999).

At puberty with the onset of menarche and in the absence of adequate dietary intake adolescent girls become highly susceptible to anaemia. It is not surprising that more than 3/4th of Indian girls are anaemic (Kulin *et al.*, 1982). According to recent reports nearly 80 percent of adolescent girls of 10-19 years of age were suffering

with iron deficiency anaemia (Mane *et al.*, 1999; Kannani *et al.*, 2000 and Saibaba *et al.*, 2002).

Iron deficiency anaemia is a problem of serious public health significance, given its impact on psychological and physical development, behavior and work performance. Iron deficiency occurs when an insufficient amount of iron is absorbed to meet the bodies' requirements. This insufficiency may be due to inadequate iron intake, reduced bioavailability of dietary iron, increased needs for iron when prolonged, (WHO 1989).

A recent report on prevalence of anaemia amongst adolescent girls indicated that incidence of anaemia increases from 10 years onwards and continues to remain high till 18 years of age. Hence there is increasing concern regarding the nutritional status of young girls who are at the threshold of adulthood.

It is possible to control anaemia through iron rich food supplements. Though medicines or chemicals render immediate relief and improve the health, regular consumption of the same is undesirable in health point of view. More over these tablets are costly and are unavailable to the common public in rural and tribal areas.