

Excess Body Fat Elimination (Anti-Obesity) Effects of *Vernonia Amygdalina* Leaf Extract

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Abstract: Problem statement: Many obese or overweight persons complain that they don't know what makes them fat. They would also like to know how to loss excess fat and maintain the fat loss. **Approach:** This research study was structured to make the obese subject loose excess fat and at the same time learn what makes people fat so that in the future they would prevent developing obesity by eating proper diets. **Results:** Thirty nine obese human subjects took *Vernonia amygdalina* leaf extract orally for one month. The subjects were required to adhere to dietary restrictions during the treatment period. The dietary restrictions included abstaining from fattening foods, soups and stews or gravy; acidic beverages; soft drinks; acidic/spicy foods, soups, stews, drinks; artificial seasoning; alcohol; tobacco and consumption of large quantities of carbohydrates. Thirty seven of the subjects who obeyed the dietary restrictions lost 16 kg of excess body fat in one month. One of the subjects who also adhered to the dietary restrictions of the treatment lost 15 kg of excess body fat. The subject who kept all the dietary restrictions except the consumption of alcohol and the consumption of two thirds of formerly consumed carbohydrates; lost 10 kg of excess body fat. These results show that *V. amygdalina* leaf has specific and efficacious excess body fat elimination (anti-obesity) properties. **Conclusion:** The results of the study enable us to conclude that the excess fat elimination effects of *V. amygdalina* leaf extract can be antagonized by consumption of excess calories like those provided by alcohol, the consumption of acidic foods and drinks. The consumption of three thirds leafy vegetable equivalent of a certain amount of carbohydrates together with required daily amounts of proteins, minerals, vitamins and water enables one to avoid accumulation of excess body fat.

Key words: Anti-obesity, *Vernonia amygdalina*, dietary restrictions, crude leaf, soft drinks, excess body fat, leafy vegetables, infusion orally, leaf extract, eating behavior

INTRODUCTION

Vernonia amygdalina crude leaf extract was found to be lipolytic in vitro (unpublished findings). Pilot studies with *V. amygdalina* crude leaf extract showed that orally taken aqueous leaf extract or infusion; topically applied aqueous leaf extract and even topically applied vegetable oil extract of *V. amygdalina* leaf produced loss of excess body fat in 2 sec to 2 min (unpublished findings).

Herbal effects observed in different cases (Abdel Wahab *et al.*, 2008; Alhousseini *et al.*, 2010; Balasubramanyam *et al.*, 2006; Hajati *et al.*, 2011; Khaled and Belbraouet, 2009; Mahfouz *et al.*, 2010; Mansi, 2006; Pulakat *et al.*, 2008; Sulaiman *et al.*, 2009; Zhou *et al.*, 2010).

In this study, human subjects who were either obese or had a lot of excess body fat were given oral *V. amygdalina* leaf extract for one month to investigate its effects on excess body fat.

MATERIALS AND METHODS

Wholesome mature red stalked *V. amygdalina* (bitter leaf) leaves were dried in low sunshine. *V. amygdalina* leaf infusion was made by extracting fragments of the dried *V. amygdalina* leaves with two times their own volume of boiling drinking water.

Treatment: Each subject took 35m L⁻¹ of the *V. amygdalina* leaf infusion orally, 3 hourly daily (8 times

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daily) or 70 mL⁻¹ of the *V. amygdalina* leaf infusion orally, six hourly daily (4 times daily); for one month of 28 days.

Dietary restrictions: The subjects were disallowed consumption of the following foods; lard; vegetable oil; butter/margarine; mayonnaise; grated coconut; bacon; ground nut/peanut butter; nuts like palm nut, coconut, date palm; oil fried foods; oily seeds like *beniseed*, *egusi*, sun flower seed; oily fruits like avocado pea, Nigerian pea; oily soups, stews or gravies; oily cooked or prepared meals like salads, bean cakes and pastries or flour foods like dough nuts, burns, cakes, spaghetti/macaroni, bread.

Other substances the subjects were not permitted to take during the treatment are alcohol or alcoholic drinks; beverages; soft drinks (including malt drinks and carbonated drinks); tobacco or tobacco products; garlic or acidic food spices and condiments; artificial food seasoning (artificial salt or salt substitutes including potash).

Permitted diet and eating behavior: The subjects were permitted to eat meals containing their normal daily requirements of proteins, non-acidic fruits; mineral salts and water. They were permitted the consumption of only one third of the carbohydrates they previously consumed and one tenth of the fats and oils they previously consumed in their diet. Two thirds of the carbohydrates which a subject previously consumed were required to be replaced by leafy vegetables.

Each subject was required to eat only two meals in a day, one in the morning to mid-morning and the other one in the late evening to early night hours.

Body indices measured: The subject's height and body weight at the beginning of the *V. amygdalina* leaf extract treatment and his/her body weight at end of the treatment were measured and recorded.

Required self report of the subjects on the treatment: The subjects were required to report whether they adhered strictly to the dietary restrictions. They were also required to report the effects of the *V. amygdalina* treatment on their body and the length of time between the intake of the extract and the observed effects.

RESULTS

The record of the height, weight at start of treatment and weight at end of treatment is shown in Table 1. A subtraction of the weight at end of treatment from the weight at the beginning of treatment shows that 37 out of the 39 subjects lost 16kg of excess body fat. One of the two remaining subjects lost 15kg excess fat weight while the second one lost 10 kg excess body fat weight (Table 1).

Each subject was slimmer (had lost a lot of excess body fat) and had a lighter skin colour at the end of treatment than he/she had at the beginning of treatment. The skin of each subject in the study was also smoother and more firmly held on the underlying body structures than it was at the beginning of the treatment. The subjects reported these skin effects of the *V. amygdalina* leaf extract treatment. They also reported increased diuresis; acquisition of greater strength and a feeling of greater wellbeing during the treatment.

All the subjects that lost 16 kg excess body fat and the subject that lost 15 kg excess body weight reported that they adhered strictly to the dietary restrictions of the treatment.

Table 1: The excess fat weight loss produced by one month oral intake of *Vernonia amygdalina* leaf extract in 39 obese or over weight human subjects

| Serial number of obese subjects | Sex | Height of obese subject in feet and inches | Weight of subject at beginning of treatment in kg | Weight of subject at end of treatment in kg | Excess fat weight lost by subject in kg |
|---------------------------------|-----|--|---|---|---|
| 1 | M | 5' 6" | 105 | 89 | 16 |
| 2 | F | 5' 4" | 77 | 61 | 16 |
| 3 | F | 5' 6" | 84 | 68 | 16 |
| 4 | F | 5' 0" | 82 | 66 | 16 |
| 5 | M | 5' 8" | 107 | 91 | 16 |
| 6 | F | 5' 3" | 102 | 86 | 16 |
| 7 | F | 5' 4" | 91 | 75 | 16 |
| 8 | F | 5' 8" | 101 | 85 | 16 |
| 9 | F | 5' 7" | 82 | 66 | 16 |
| 10 | F | 5' 4" | 76 | 60 | 16 |
| 11 | M | 5' 9" | 110 | 100 | 10 |
| 12 | F | 5' 0" | 63 | 47 | 16 |
| 13 | F | 5' 4" | 78 | 62 | 16 |
| 14 | F | 5' 6" | 80 | 64 | 16 |
| 15 | F | 5' 3" | 70 | 54 | 16 |
| 16 | F | 6' 0" | 103 | 87 | 16 |
| 17 | F | 5' 8" | 99 | 83 | 16 |
| 18 | F | 5' 5" | 91 | 75 | 16 |
| 19 | F | 5' 9" | 98 | 82 | 16 |
| 20 | F | 5' 4" | 92 | 76 | 16 |
| 21 | F | 5' 10" | 104 | 88 | 16 |
| 22 | F | 5' 7" | 93 | 77 | 16 |
| 23 | F | 5' 3" | 91 | 75 | 16 |
| 24 | M | 5' 9" | 103 | 87 | 16 |
| 25 | F | 5' 6" | 96 | 80 | 16 |
| 26 | F | 5' 10" | 106 | 90 | 16 |
| 27 | F | 5' 6" | 85 | 69 | 16 |
| 28 | M | 5' 9" | 97 | 81 | 16 |
| 29 | F | 5' 4" | 80 | 65 | 15 |
| 30 | F | 5' 4" | 75 | 59 | 16 |
| 31 | M | 5' 11" | 96 | 80 | 16 |
| 32 | F | 5' 0" | 65 | 49 | 16 |
| 33 | F | 5' 6" | 78 | 62 | 16 |
| 34 | F | 5' 7" | 90 | 84 | 16 |
| 35 | F | 5' 4" | 76 | 60 | 16 |
| 36 | F | 5' 7" | 95 | 79 | 16 |
| 37 | M | 5' 7" | 77 | 61 | 16 |
| 38 | F | 5' 4" | 76 | 60 | 16 |
| 39 | F | 5' 6" | 80 | 64 | 16 |

The subject who lost 10 kg excess body fat reported that he adhered to all the dietary restrictions except abstaining from alcohol intake. This subject also reported that he took only half of the required vegetable with his carbohydrate meals as he was unable to consume more vegetables.

The excess fat elimination, skin, energy and wellbeing effects of *V. amygdalina* leaf extract were observed by the subjects to have taken place within few sec to 2 min of extract intake. The subjects reported that the diuresis following the *V. amygdalina* leaf extract intake occurred in 2-30 min depending on whether the subject was awake or asleep.

DISCUSSION

Vernonia amygdalina leaf extract treatment reduced the excess fat (weight) of every one of the 39 obese or overweight human subjects in the study. (b) The magnitude of the excess fat elimination effect of *Vernonia amygdalina* leaf extract treatment on the excess fat (weight) of 39 obese and overweight human subjects was the same for almost all the subjects (97%) judging by the similarity and equidistance of the before and after extract treatment curves (Fig. 1a and 1b).

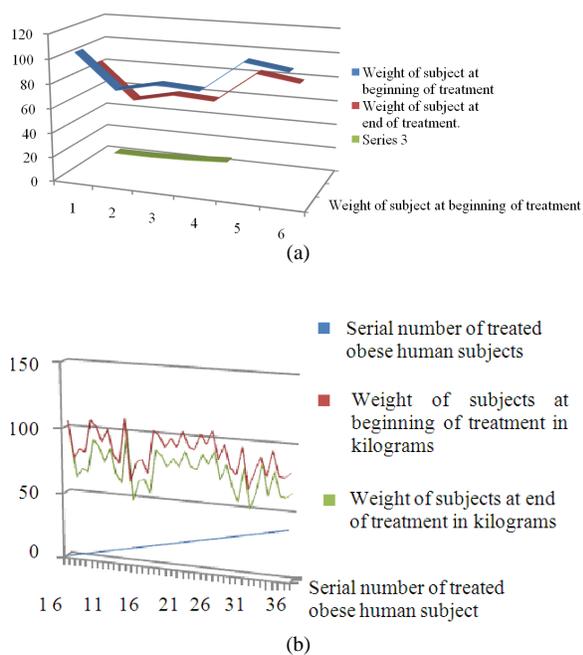


Fig. 1 a and b: The effect of vernonia amygdalina on excess fat weight of human subject

The results of the study indicate that under the conditions of the study, *V. amygdalina* leaf extract was efficacious and specific in eliminating excess body fat of the subjects as 97% of the treated subjects lost excess body fat to the same degree (15-16 kg fat weight loss). The subject who took only half of the required leafy vegetables and continued to take alcohol during the treatment achieved only 63% excess fat weight loss compared to the rest of the subjects (on a scale in which loss of 16 kg excess body fat was the maximal (100%) effect of the *V. amygdalina* leaf extract treatment

CONCLUSION

The findings of the study show that *V. amygdalina* leaf extract is efficacious and specific in eliminating excess body fat but its excess body fat elimination effects can be antagonized by the consumption of excess dietary calories and acidic foods (and drinks) by the individual.

The anti-obesity effects of *V. amygdalina* leaf extract demonstrated in this study are suggested to be related to the anti-oxidant (Hafidh *et al.*, 2009.), immunomodulatory (Akah and Okafor, 1992), lipid-lowering effects of *V. amygdalina* leaf extract obtained in various studies.

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