

# Bitter Gourd Relish and Blood Group Relationship

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Received:  February 06, 2019

Published:  February 14, 2019

## Abstract

The topic of our project was to explore the “Bitter gourd relish and blood group relationship.” The number of subjects to examine were 176. The process we adopted before examining the subjects was acquiring their consent before the collection of related information. We checked blood group of the subjects by using lancing device along with anti-sera A, B and D solutions and then noted the precipitate formation. In the meanwhile we asked whether they liked bitter gourd as a dish or not. We gathered the basic information about bitter gourd composition and its merits for the subjects that used it as a dish or juice. Then we organized the random data presented in a table and observed the relationship of bitter gourd liking to blood type and made a comparative analysis of blood groups. At the end, we defined the results.

**Keywords:** Bitter Gourd; Blood Grouping; Bitter Melon; Karela; Fondness; Relish; Liking

## Introduction

Human beings has a fluid inside their bodies known as blood. Blood comprises leukocytes, erythrocytes, and platelets. ABO Blood Group system was first discovered in 1901 by Karl Landsteiner. The classification of human blood group is based on antigens and antibodies present in blood. Antibodies are the natural immune system proteins that act as a defense mechanism. ABO system is encoded by gene I located on chromosome 9. This gene is polymorphic having three alleles represented as  $I^a$ ,  $I^b$  and  $i$ . If a subject has blood group A, then it means it has antigen A present on its red blood cells and antibody B is present. So, genotype  $I^aI^a$  or  $I^ai$ , will produce phenotype A. Subject having genotype  $I^bI^b$  or  $I^bi$  will produce phenotype B. Subject having AB blood, no antibody is present, and genotype is  $I^aI^b$ . If blood group is O, this subject has no antigens and both antibodies are present in the blood plasma. So, the homozygous recessive genotype  $ii$  produces the phenotype O. The universal donor is O blood group and can donate blood to group A and group B types. The universal recipient is AB group, means it can take blood from any donor like from group A, B and O [1]. There is another protein known as Rh protein or Rh factor present on erythrocytes. A subject is Rh positive when the Rh protein is present and Rh negative if Rh protein is absent. So, blood group of a subject may be  $A^-$ ,  $A^+$ ,  $B^-$ ,  $B^+$ ,  $AB^-$ ,  $AB^+$ ,  $O^+$  and  $O^-$  [2].

Bitter gourd a vegetable, also known as bitter melon, bitter squash, balsam pear, and simply as karela (in Urdu). The scientific name of bitter gourd is *Momordica chianti*. Bitter gourd a vine of the family Cucurbitaceae, grown mostly in Asia and Africa [3]. Bitter gourd juice consists of nutrients like iron, magnesium, potassium and vitamin C. It is rich in dietary fiber. It contains two-fold of calcium of spinach, potassium of banana and beta-carotene. The compound momordicines and increased levels of calcium is the cause of characteristic bitterness of bitter gourd. Bitter gourd contains diabetic control compounds naturally. Also, bitter squash juice is anti-inflammatory and lowers bad cholesterol levels in human body and acid lessons the risk of heart of stroke and heart attack due to enrichment in iron and folic acid. It maintains the blood pressure of body. Anti-oxidants along with vitamins like C and A in bitter gourd retards premature skin ageing and minimizes wrinkles. *Momordica charantia*, a compound strengthens the anti-oxidant activity of liver enzyme and provides defense against liver failure and removes intoxication caused by frequent alcohol uptakes that settled down in liver. It also boosts functioning of bladder. Bitter melon contains less amount of carbohydrates, calories and fat, that play role in removal of already present fat cells and inhibits the generation of new fat cells. Anti-oxidants in bitter melon reduces the risk of cervical, prostate and breast cancer in humans. Bitter gourd decreases the sight-related problems

such as cataract as being rich in vitamin A and beta-carotene and strengthens eyesight [4]. Objective of present study was correlating blood groupings with bitter gourd.

## Materials and Methods

### Blood Grouping

The materials required to test blood group were the required quantity of blood from specific groups (three drops) was taken for testing with a prick of sterilized needle (blood lancet) on a fingertip (any), slides and solutions of anti-sera A (antigen A with B antibody), anti-sera B (contains antigens B with A antibodies) and anti-sera D (Rh +ve factor). Anti-sera means the solution contains opposite antibody with respect to antigen. First, label the slide with A, B, and D so that anti-sera drops can be identified. Then placed three drops of blood on the slide. Afterwards, add a or few drop of anti- sera A, anti-sera B, anti-sera D according to the labeling on the slide. In the end, leave the slide for two to three minutes or mix each drop with needle wire and observe the changes in drop solution. Precipitate formation of blood drop shows that blood group presence in subject. Precipitate formation in anti-sera D, meant positive. Precipitate formation in any anti-sera A, B and D,

then A<sup>+</sup>, B<sup>+</sup> blood group. If precipitates were formed in all three anti-sera A, B and D, then blood group was AB<sup>+</sup>. If precipitates were formed in only anti-sera D blood group was O<sup>+</sup> and no precipitate in any anti-sera, meant that blood group was O<sup>-</sup>. If precipitates were formed in either anti-sera A or B, or both then blood group was A<sup>-</sup>, B<sup>-</sup> and AB<sup>-</sup> respectively.

### Project Designing

The topic we selected was bitter gourd relish. We asked subjects whether they like bitter gourd as a dish or not because of its bitter taste. Subjects also gave their consent to check their blood group. Then we organized the random data and did the statistical analysis. The subjects which we chose for our project, were the 176 students of Bahauddin Zakariya University, Multan Pakistan.

Statistical analysis

We did Statistical analysis by using MS Excel

## Results and Discussion

Studies based on questionnaire have given an important advancement in science [5-12]. No linkage or research work was found that correlated my topic (Table 1).

Table 1:

Blood group type	Total likes (122)		Total dislikes (54)	
	Males	Females	Males	Females
A <sup>+</sup>	7(3.9%)	15(8.5)	5(2.8%)	5 (2.8%)
A <sup>-</sup>	0	1(0.5)	1 (0.5%)	0
B <sup>+</sup>	7(3.9%)	33 (18.75%)	3(1.7%)	17 (9.65%)
B <sup>-</sup>	3(1.7%)	3 (1.7%)	0	0
AB <sup>+</sup>	3(1.7%)	5 (2.8%)	0	3
AB <sup>-</sup>	0	1(0.5%)	0	0
O <sup>+</sup>	10(5.68%)	24(13.6%)	7(3.9%)	13(7.38%)
O <sup>-</sup>	0	10(5.68%)	0	0

## Conclusion

The present study concluded in figure (A) that bitter gourd fondness was shown mostly by B<sup>+</sup> subjects. B<sup>+</sup> blood group subjects liked the bitter melon most. The frequent occurrence of similar blood group of my subjects were B<sup>+</sup>. All the subjects of our research having O<sup>-</sup> blood group were females and they all liked the bitter melon. The likeliness percentage of subjects with blood group O<sup>+</sup> and B<sup>+</sup> were same, (11%). All blood group AB<sup>-</sup> and B<sup>-</sup> subjects liked bitter squash. Out of 46 male subjects, bitter melon was liked by 30 males. Total 92 female subjects liked the taste of bitter squash as a dish out of 130.

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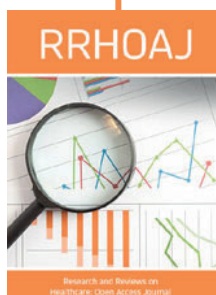
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DOI: [10.32474/RRHOAJ.2019.03.000158](https://doi.org/10.32474/RRHOAJ.2019.03.000158)



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