Evaluation the Effect of Solanum Melongena on Some Coagulation Parameters among Sudanese People in Khartoum State, Sudan

Abstract:

Background: Eggplant is the fifth most economically important solanaceous crop after potato, tomato, pepper, and tobacco. Eggplant is rich in vitamin A, vitamin B1, vitamin C, vitamin D and protein and calcium, blood vessels can become soft.

Objectives: this study was conducted to determine the effect of solanum melongena on some coagulation parameter among Sudanese people in Khartoum state.

Materials and Methods: A cross -sectional study was conducted at Dar El oloum College for Science and Technology in Khartoum state among 30 Sudanese who eat eggplant and 30 who are non-eat eggplant (sensitive) during the period from August 2021_September 2021.The venous blood sample was collected in sodium citrate anticoagulant , the analysis was done using manual technique .

Results: The study showed that there is no significant differences in mean of PT in study group compared to the mean of the normal control (p value =.0493). In other hand the mean of INR is not significantly decreased (P value = 0.691) in study group compared to the mean of normal value (mean =1). Whereas APTT was not significantly decreased in study group compared to the mean of normal value (P value=0.195) (mean=32).

Discussion: We have studied the effect of eggplant on coagulation parameter PT and aPTT in the period from April to September ,and we conducted the study on 60 individuals 30 eat eggplant and 30 not eat eggplant in the age group (15-25) male and female in Khartoum state in at Dar El oloum College for Science and Technology. There is no previous studies were founded concerning the current study. Up to our knowledge the result showed that there are no significant differences in mean of PT and aPTT in study group compared to the mean normal control.

Conclusion: The take of Solanum melongena had no effect on PTand aPTT.

Keywords: Eggplant, Hemostasis, hematological parameters, prothrombin time and activated partial thromboplastin time, Sudan.

1 Introduction:

“Eggplant is the fifth most economically important solanaceous crop after potato, tomato, pepper, and tobacco. Apart from the well-known brinjal eggplant” (Solanum melongena L.), “two other under-utilized eggplant species, the scarlet eggplant” (S. aethiopicum L.) and the gnome eggplant (S. macrocarpon L.) are also cultivated. “The taxonomy and identification of eggplant wild relatives is challenging for breeders due to the large number of related species, but recent phenotypic and genetic data and classification in primary, secondary, and tertiary genepools, as well as information on the domestication process and wild progenitors, facilitates their utilization in breeding. The World Vegetable Center (WorldVeg) holds a large public germplasm collection of eggplant, which includes the three cultivated species and more than 30 eggplant wild relatives, with more than 3,200 accessions collected from 90 countries. Over the last 15 years, more than 10,000 seed samples from the Center's eggplant collection have been shared with public and private sector entities, including other genebanks. An analysis of the global occurrences and genebank holdings of cultivated eggplants and their wild relatives reveals that the WorldVeg genebank holds the world's largest” (1)

“It is a delicate, tropical perennial plant often cultivated as a tender or half-hardy annual in temperate climates. The stem is often spiny. The flowers are white to purple in color, with a five-lobed corolla and yellow stamens. Some common cultivars have fruit that is egg-shaped, glossy, and purple with white flesh and a spongy, "meaty" texture. Some other cultivars are white and longer in shape. The cut surface of the flesh rapidly turns brown when the fruit is cut opens (oxidation)” [2].

“In tropical and subtropical climates, eggplant can be sown in the garden. Eggplant grown in temperate climates fares better when transplanted into the garden after all danger of frost has passed. Eggplant prefers hot weather, and when grown in cold climates or in areas with low humidity” [3].

“The plants languish or fail to set and produce mature fruit. Seeds are typically started eight to 10 weeks prior to the anticipated frost-free date. S. melongena is included on a list of low flammability plants, indicating that it is suitable for growing within a building protection zone Spacing should be 45 to 60 cm (18 to 24 in) between plants, depending on cultivar, and 60 to 90 cm (24 to 35 in) between rows, depending on the type of cultivation equipment being used.

Mulching helps conserve moisture and prevent weeds and fungal diseases and the plants benefit from some shade during the hottest part of the day. Hand pollination by shaking the flowers improves the set of the first blossoms. Growers typically cut fruits from the vine just above the calyx owing to the somewhat woody stems. Flowers are complete, containing both female and male structures, and may be self- or cross-pollinated" [4].

2 Materials and Methods:

2-1 Study design and setting

This was a Non experimental descriptive Cross sectional study designed to evaluate the effect of eating eggplant in some hemostatic parameters among Sudanese patients attending at Khartoum state, Sudan.

2-2 Participants:

These study participants were 100 Sudanese male and female they are eating eggplant.

2-3 Data Collection:

Venous blood samples were collected without a pressure cuff, allowing the blood to enter the syringe by continuous free flow or by the negative pressure from an evacuated tube in tri-sodium citrate anti-coagulants; the blood is thoroughly mixed with the anticoagulant by inverting the container several times, Then Preparation of Platelet-Poor Plasma (ppp) ,which is prepared by centrifugation at 2000 g for 15 min at 4C (approx. 4000 rev/min a standard bench cooling centrifuge).The sample should be kept at room temperature ,the testing should preferably be completed within 2 h of collection Care must be taken not to disturb the buffy coat layer when removing the PPP, the PT and aPTT were evaluated.

2-5 Statistical analysis:

The collected data was analyzed by using statistical package for social sciences (spss) version 12 statistical software.

3- Results:

Table 1 showed that there is no significant differences in mean of PT in study group compared to the mean of the normal control (p value =.0493) as seen in(Table 1& figure 1) .

Table 2 showed Mean of INR showed a significantly decreased (P value = 0.691) in the study group compared to the mean of normal value (mean = 1) as seen in (table 2& figure 2).

Table 3 showed Mean of aPTT was not significantly differences in study group compared to the mean of normal value (P value= 0.195) (mean = 32)as seen in(table 3 & figure 3).

	eat eggplant	Mean	Std. Deviation	P value
PT	Yes	14.3727	2.54698	0.493
	No	14.4600	2.98764	

Table (1) : Mean difference of PT in study group

	eat eggplant	Mean	Std. Deviation	P value
INR	Yes	.9213	.20867	0.691
	No	.9227	.21027	

Table 2: Mean *difference of APTT in study group.*

	eat eggplant	Mean	Std. Deviation	P value
aPTT	Yes	31.2327	4.79811	0.195
	No	32.3623	7.94907	

Table 3: *Mean difference of INR in study group*

Parameters	Age	Mean	P value
PT	15-20 20-25	15.3150 14.0312	**0.447**
APTT	15-20 20-25	0.9644 0.9038	**0.622**
INR	15-20 20-25	30.8339 32.2105	**0.500**

Table 4*: The mean differences in PT, APTT, and INR in age group.*

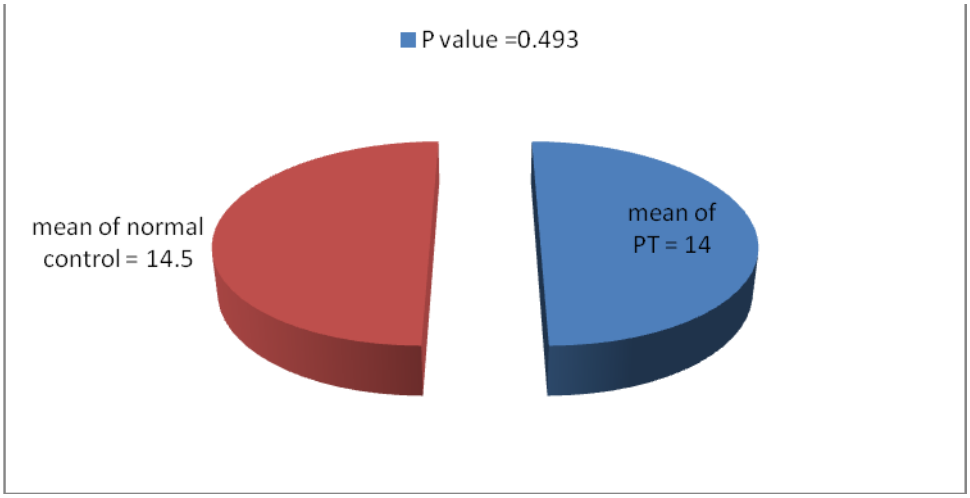

Figure 1: **Mean difference of PT in study group**

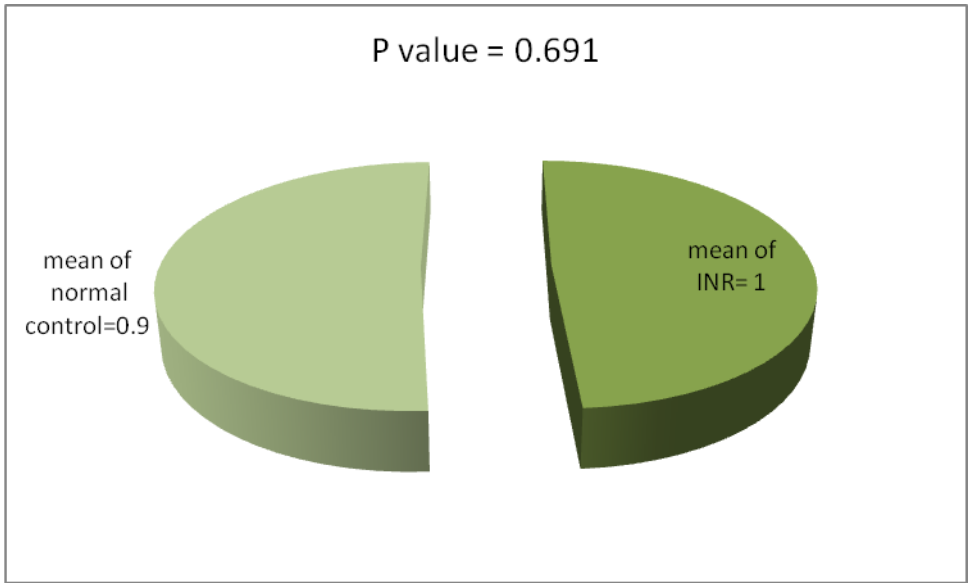

***Figure 2**: Mean difference of APTT in study group.*

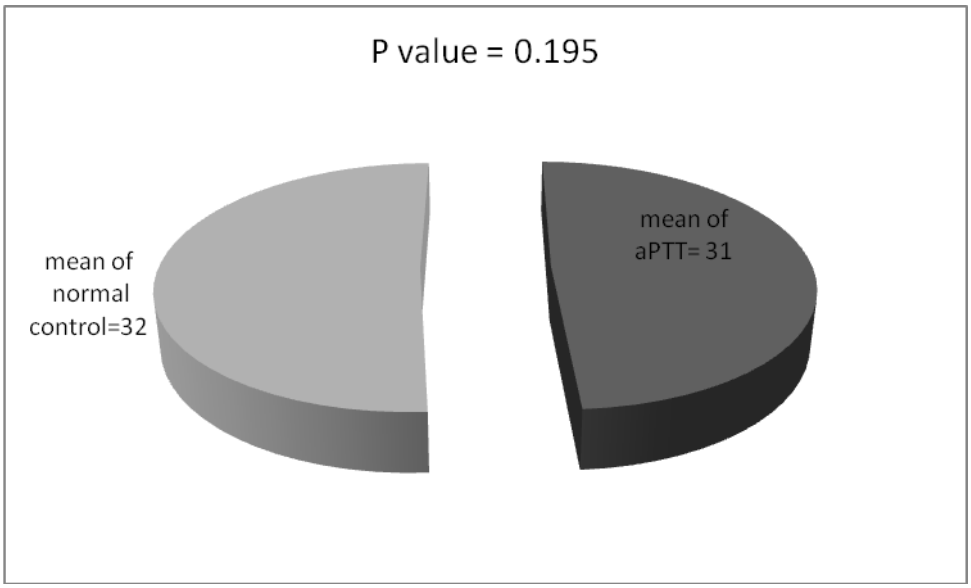

***Figure 3**: Mean difference of INR in study group*

4-Discussions:

We have studied the effect of eggplant on coagulation parameter PT and aPTT in the period from April to September ,and we conducted the study on 60 individuals 30 eat eggplant and 30 not eat eggplant in the age group (15-25) male and female in Khartoum state in at Dar Eloloum College for Science and technology. There is no previous studies were founded concerning the current study. Up to our knowledge the result showed that there is no significant differences in mean of PT and aPTT in study group compared to the mean normal control.

5-Study Limitations:

The study limitations include important element like the price of eggplant in Sudan very cheap comparing with economical levels, so we need in this study focusing on the disadvantage of uncontrollable of using a large amount.

6- Conclusions:

The taken of Solanum melongena had no effect on PT and aPTT.

7- Recommendations:-

-No previous studies were founded concerning the current study.

- More studies should be done about the effect of solanum melanogena on coagulation parameter Involve large sample size and difference ethnic groups.
- Increase the duration of eats solanum melanogena (eggplant).
- we recommend doing study about effect of other plant on coagulation parameter eg:(potato, tomato and pepper).

- If you take more there is find effect on some coagulation parameters

Ethical Approval:

Ethical approval was obtained from the form federal ministry of Health Ethical Research committee (Khartoum State), and the agreement was taken from Dar-Eloloum College.

Disclaimer (Artificial intelligence)

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Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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Details of the AI usage are given below:

1.

2.

3.

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Appendix:


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