

# How to Protect Our Children from a Beautiful Deadly Plant

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**Abstract:- In this paper the spread of one of the strong toxic lectin – Ricin extracted from castor plant (*Ricinus communis*), having deadly action and purposefully using for the arranging of terrorist acts is described. It is pity that to save people poisoned with Ricin practically is impossible because of the absence of proper antidote to Ricin. Unfortunately, lectin – Ricin especially dangerous is for children, as beautiful leaves and fruit of this plant are very attractive for them. They make beads from its fruit and wear them around their necks. Based on the above-said, at detection of castor plant, it should be immediately timely uprooted and destroyed to avoid a danger of the spread of this deadly beautiful plant in the places available for the children. It is pity that several cases of the poisoning with this plant have already been recorded.**

**Keywords:-** Lectin – Ricin, *Ricinus Communis*, Terrorist Acts.

## I. INTRODUCTION

In 1888 by a doctoral student of Tartu University Peter Herman Stilmark extracted a protein of plant origin – lectin with the ability to agglutinate erythrocytes from the seeds of the plant – castor (*Ricinus communis*) and called it Ricin. Ricin as a strong toxic substance was widely used for arranging terrorist acts. This plant is also widespread in Georgia. In Russian mass media among the producers and distributors of Ricin, Georgia was also mentioned, particularly one of its regions - Pankisi.

Castor plant as decorative plant having beautiful flowers is widely spread in the parks, squares, and especially on the cemeteries of Georgia.

In recent times, more than 300 persons suspected in terrorism, were arrested by UK Anti-terrorist Police. Many cases of Ricin poisoning with the aim to perform terroristic acts were described in the literature. For example, in 1978 in London, on the Waterloo Bridge a Bulgarian dissident, BBC journalist George Markov was killed by pricking by an

umbrella tip, treated with Ricin. This fact became known as “murder by an umbrella”. In the same year, in Paris, Vladimir Kozlov was poisoned in the same way. Though, Kozlov could escape death, but his condition was very severe during a long time.

In 1991 in America there was an attempt of murdering even of American Marshal. The terrorist treated the handle of Marshal car’s door with Ricin solved in dimethyl sulfoxide, but the terrorist failed to do it and he was arrested.

In 1995 a person was arrested on his way from Alaska to Canada, as he had a white powder of Ricin in his bag. In 1997 a person killed his stepson by hitting him with a metal subject treated with Ricin, leading to his death. In 2002 British Policy arrested terrorists in Manchester. During making a search in their flat, a laboratory producing Ricin was found. In 2003 during a raid, British Policy arrested Chechen terrorists with Ricin. They recognized that they intended to attack the Russian Embassy. In 2003-2004 they planned to use Ricin even in the White House, in the Post office of the Southern Carolina, in the American Transport Department and in other organizations for the execution of terrorist acts. Castor as an ornamental plant is widely spread in the parks, squares of the towns and, especially, on the cemeteries of Georgia. In the villages and some regions, on the areas adjacent to the railway a fall of the cattle has been observed, which up today remains to be unexplained. It’s known that the cattle avoid from consuming the legumes containing toxic lectins. But, it is not excluded that in this case the cattle consumed a castor plant leading to their death. It is very dangerous that very often children make beads from beautiful seeds of castor plant and wear them around their necks. This may become a reason of a severe skin damage and sometimes even of the death.

The various forms of subspecies of *Ricinus communis* are spread in the tropics of Africa. Its leaves are distinguished by green or grey-red coloring. The flowers are green, pink or red, and that’s why they look quite attractive. The flowers and seeds of castor plant are presented on the Fig. 1.

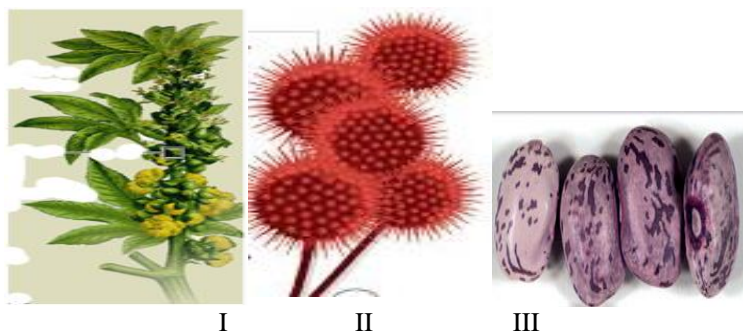


Fig. 1. Flowers and seeds of castor-plant

Castor-plant is distinguished by abundant productivity, has beautiful seeds and leaves, which attract children and make some threats to their lives. Unfortunately, frequent cases of poisoning with Ricin were recorded especially among children. The degree and severity of poisoning with Ricin depend on the way it enters the organism. For example, the first signs of poisoning by inhalation were noted in the first 8 hours, while by injection - after 6 hours.

At inhalation poisoning, some pains in the stomach area, diarrhea, and often bleeding, pressure drop, nausea, cessation of liver, kidneys and gallbladder functions, dehydration are observed, the skin gets blue coloring. All this leads to the death of a person. In adults a lethal dose does not exceed 1 mg.

Based on the above-said, the children should strictly avoid this plant, as in case of chewing or swallowing of its leaves and seeds it can be fatal.

It is noteworthy that abroad it is forbidden to cultivate castor plant in the gardens and recreation parks. In extreme cases, the plant should not be given the opportunity of blossom and fruit ripening.

Ricin lethal action is due to the irreversible inhibition of protein biosynthesis. Glycosylated monomer of Ricin has been detected, by means of which death occurs as a result of protein synthesis inhibition in the organism.

As a result of Ricin penetration into the organism, strong toxic compounds are created in human cells, leading to humans and animals death.

The penetration of Ricin into the human and animal organism takes place after the connecting cells to the surface. In this way, it is possible to connect several dozen molecules to single cells, while even one molecule is enough for cells destroy.

Because of absence of therapeutic antidote or appropriate vaccine, after poisoning there is very little chance to save a human being. It has been established that for extermination of 50% people on one hectare square, it is enough to injection of 3 mkg/kg aerosol or by addition of Ricin to food and water it is possible to individual or mass extermination of people.

## II. CONCLUSION

Unfortunately, today the territories of castor plant spread and its frequency in various countries of the world, including Georgia. However, these plants are noted on the cemeteries of some regions, in the yards of villages. It is obvious that this plant is quite hardy and well adapted to Georgian climate conditions. Because of it, at their detection it is necessary uprooting and full destruction as at superficial cutting of castor plant, it retains the ability to reproduction.

## REFERENCES

- [1]. Aleksidze N. Normal and Pathological Biochemistry for Physicians. The Publishing House "Universal", Tbilisi, 2008 (in Georgian).
- [2]. Aleksidze N., Aleksidze G. The Fundamentals of Ecological Biochemistry. The Publishing House "Universal", Tbilisi, 2010 (in Georgian).
- [3]. ata:text/html;charset=utf-8,%3Cdiv%20id%22subheader%22%20style%22width%3D%22width%3A%20580px%3B%20h