

# Abrus precatorius: Does use in traditional medicine show potential for allopathic use?

Summary from the article: Detoxification of *Abrus precatorius* L. Seeds by Ayurvedic Shodhana Process and Anti-inflammatory Potential of the Detoxified Extract  
Performed by Dhoble, Sagar, and Anuradha Majumar

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## Abstract

*Abrus precatorius* contains the lethal toxin, abrin, which has a fatal dose that is 75 times smaller than that of ricin. In the Ayurvedic traditional medical system of India, the seeds of *Abrus precatorius* are detoxified to produce an extract used for therapeutic effects. Positive results from *in vitro* and *in vivo* tests confirmed that the Ayurvedic method was successful in detoxification and that after detoxification, use as an extract could render therapeutic effects. The results suggest that with further research, *Abrus precatorius* seed extract could be used as allopathic medicine.

## Introduction

In Western culture, we primarily rely on allopathic methods of diagnosis and healing, while looking with skepticism at forms of alternative and traditional medicine. Despite this, many prescription drugs and treatments have been adapted from observation of efficacy in other cultures worldwide. *Abrus precatorius*, the rosary pea, contains one of the world's deadliest plant toxins, abrin. Ingestion of a single seed is a fatal dose to humans. Discovery of the rosary pea's use in Ayurvedic medicine, a natural healing system from India, has led to studies on if the toxicity can be eliminated while still retaining properties beneficial to Western medicine.

## Objective

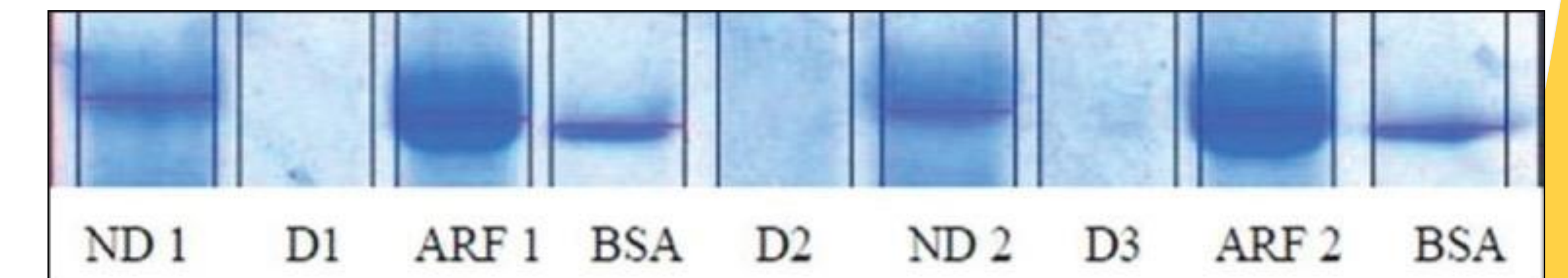
- To demonstrate efficacy of detoxification of *Abrus precatorius* seeds according to the Ayurvedic medical system
- To affirm anti-inflammatory potential exists within the seed after detoxification
- To discuss the potential for use in allopathic medicine

## Methods

The main piece of literature on *Abrus precatorius* research used the detoxification method of boiling in water to produce a non-toxic extract. This is the detoxification method used in the Ayurvedic medical system before application. To assess if detoxification was successful, the extract was used in *in vitro* assessments of a cytotoxicity assay, SDS-PAGE, and hemagglutination assay. The extract was also used for *in vivo* assessments of brine shrimp lethality and whole body zebrafish apoptosis to affirm the results that the toxic principle was successfully removed. A rat paw edema model was used to test if anti-inflammatory effects are still present after detoxification.

Groups	Dose (mg/kg)	% Inhibition of paw edema (min)				
		30	60	120	180	360
Positive control	-	-	-	-	-	-
Diclofenac Sodium	10	31.79	40.61	78.13	89.50	89.64
Non-detoxified extract	100	22.14	10.92	47.47	52.49	36.79
Non-detoxified extract	200	48.57	42.66	69.87	74.02	80.83
Detoxified extract	100	32.86	27.99	45.87	52.76	48.70
Detoxified extract	200	48.21	41.98	61.07	80.84	88.60

**Figure 2.** Rat Paw Edema Model  
Diclofenac sodium is used as control for proven edema reduction. At a dose of 200mg/kg, the detoxified extract maintains similar % inhibition of the non-detoxified extract, with both extracts showing marked reduction in edema similar to diclofenac sodium



**Figure 1.** SDS-PAGE  
ND: Non-detoxified extract; D: Detoxified extract; ARF: Abrin rich fraction; BSA: bovine serum albumin. The band seen in ARF and ND is absent in D, indicating the toxic principle has been removed

## Discussion

Ayurvedic treatments are not FDA approved and individuals should always consult a doctor before practicing anything of this nature. However, by looking to traditional systems that have been around for thousands of years, potential for new medicinal treatments arise. The cytotoxic protein, abrin, is successfully denatured and removed after boiling in water, but the therapeutic effects were still present. Isolation of the anti-inflammatory properties could provide an avenue to develop a new medicine.

The CDC cites that *Abrus precatorius* seeds are being explored for use in cancer medication. Another study shows a methanol extract of the seeds has antidiabetic properties. An extract taken from the leaves have shown to be effective in asthma management.

Numerous studies have confirmed the presence of therapeutic effects within various parts of the *Abrus precatorius* plant. With further studies and the advancement of research methods, treatments could be developed using the detoxification methods observed in Ayurvedic medicine.

## Literature Cited

1. Dhoble, Sagar, and Anuradha Majumar. "Detoxification of *Abrus precatorius* L. Seeds by Ayurvedic Shodhana Process and Anti-inflammatory Potential of the Detoxified Extract." *Journal of Ayurvedic and Integrative Medicine* 5.3 (2014): 154-61. Web.
2. "Facts About Abrin." Center for Disease Control and Prevention, 21 May 2013. Web.
3. "Antidiabetic Effect of Chloroform - Methanol Extract of *Abrus Precatorius* Linn Seed in Alloxan Diabetic Rabbit." *Journal of Applied Science & Environmental Management* 9.1 (2005): 85-88. Web.
4. Taur, Dj, and Ry Patil. "Mast Cell Stabilizing and Antiallergic Activity of *Abrus Precatorius* in the Management of Asthma." *Asian Pacific Journal of Tropical Medicine* 4.1 (2011): 46-49. Web.