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Research Article

ANTIALLERGIC IMPACT OF *ALOE VERA* EXTRACT ON DYE WASTEWATER TREATED SWISS ALBINO RATS

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ABSTRACT
The present work was carried out to investigate the antiallergic effect of *Aloe vera* extract in dye wastewater introduced allergic albino rats. To investigate the effect of Aloe vera 10 albino rats were included in this study. Allergy was induced in 10 rats by intraperitoneal injection of dye wastewater effluent collected from a drain in the Sanganer Environ, Jaipur. Injection was given as a dose of 130mg/kg body weight. Complete Data was taken after ten days of administration of dye wastewater. After the induction of allergy 5 rats were treated with *Aloe vera* extract orally at a dose of 200mg/kg of body weight. Remaining 5 rats were kept untreated. The blood samples were taken from the coccygial vein of each rat for the estimation of histamine level after 10 day time period. The blood samples of 5 untreated rats having allergy due to dyewastewater without administration of aloe vera was recorded to contain high histamine levels. However the blood samples of treated rats with orally administered aloe vera contained much reduced content /negligible content of histamines. This observation gave the conclusion that aloe Vera is an antihistamine agent and can cause deduction of allergy in mammals.

INTRODUCTION
Allergy is a disorder of histamine increment level in blood serum causing various skin irritations, respiratory congestion and pharyngitis (Kay, 2000). The dye wastewater allergy is a common occurrence among animal and human population due to untreated sanganer textile dye wastewater and the effluent is thus very harmful.
The immune system is hampered and inflammatory responses in skin are visualized. Red eyes, asthma attack, fever, skin rashes are generally observed in allergic condition. Environmental factors are one of the causes of allergy. In the present investigation it has been notified that textile dye wastewater effluent causes allergic reactions in rats.
This can be nullified by oral intake of the antihistamine aloe vera which can be further utilized as a good ayurvedic medicine in mammals. Aloe vera has many significant properties and is considered to be a boon for human health (Vogler and Ernst, 2013). This study proves its antiallergic effect and beneficiality of its utilization for commercial importance.

MATERIALS AND METHODS
10 adult male albino rats (weighing 200-300 g) were used and housed in stainless steel cages with wire mash floor. Dye wastewater sample was collected from a nearby drain in Mohana industrial area, Sanganer. Allergy was induced in overnight fasted animals by a single subcutaneous injection of dye wastewater in a dose of 120mg/kg body weight with freshly collected sample.
After induction of allergy by intraperitoneal injection of dye wastewater in rats, blood (1ml) was taken from these10 experimented rats. The whole experimental work was transferred into sample tubes for analysis. The blood serum was investigated out at the Ranbaxy diagnostics, Jaipur, Rajasthan, by well skilled Microbiologists.
Allergy was confirmed in the dye wastewater treated rats by measuring the histamine concentration on the10th day post-injection of dye wastewater. After 10 days of dye wastewater injection, the level of histamine was measured. Rats with serum histamine level, ranging between 150 mg/dl or above were considered as allergic, while those with lower than 150 mg/dl level were considered to be normal.

The 5 rats were orally administerd with aloe vera extract and on the next day their serum histamine test was taken.

RESULTS AND DISCUSSION

Discussion

Histamine is naturally produced in mammalian body by mast cells or white blood cells, and it performs different functions by binding with histamine receptors. Depending upon their location, histamine receptors control very different body functions:

Histamine H1 receptors: Smooth muscle and endothelial cells affecting skin; blood vessels (Benadryl and Claritin block activity of these receptors).

Histamine H2 receptors: Cells in the intestines control acid secretion, abdominal pain, and nausea; heart rate (Histamine H2 receptor antagonist drugs have been used to reduce symptoms of dyspepsia and GERD).

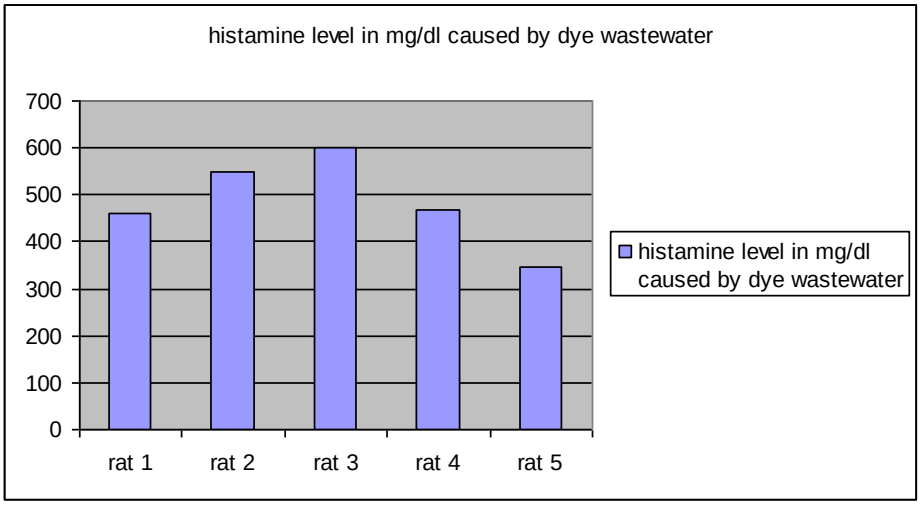
Histamine H3 receptors: Central nervous system controlling nerves, sleep, appetite and behavior

Histamine H4 receptors: Thymus, small intestine, spleen, colon, bone marrow and white blood cells; immune function and inflammation (Di Giuseppe, 2003).

The histamine levels are raised due to allergy in rats as induced by textile dye wastewater administration. These have been reduced and made to normal content by provision of aloe vera extract orally in swiss albino rats. Effects were notified only after a day and shown as above.

Table 1: Allergy induced in swiss albino rats due intraperitoneal injection of dye wastewater

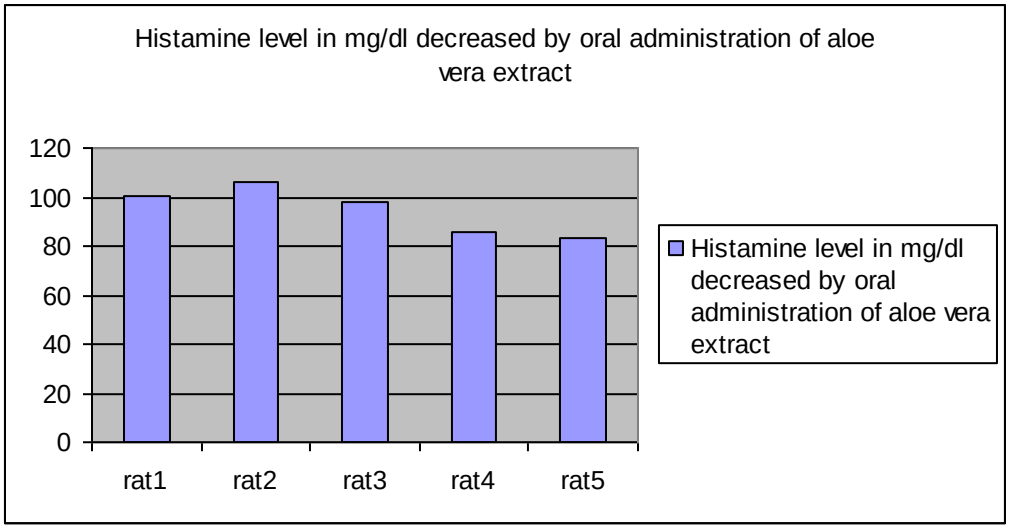
Swiss albino rats	Histamine level in mg/dl caused by dye wastewater
Rat 1	460
Rat2	550
Rat3	600
Rat4	467
Rat5	346



Graph 1: Induction of allergy as shown by increase in histamine level in mg/dl caused by dye wastewater

Table 2: Antiallergic condition observed with low histamine levels in swiss albino rats due to oral administration of aloe vera extract

Swiss albino rats	Histamine level in mg/dl decreased by oral administration of aloe vera extract
Rat 1	100
Rat2	106
Rat3	98
Rat4	86
Rat5	83



Graph 2: Antiallergic conditions caused by decrease in histamine levels in mg/dl caused by oral administration of Aloe vera extract

Results

The present work was designed to investigate the antiallergic effects of Aloe vera extract in Dye wastewater-induced albino rats. The albino group showed marked increase of histamine level as compared to the normal ones when delivered with dye wastewater effluent injection. It has been observed that out of the five rats, rat 3 showed maximum histamine induction and allergy due to dye wastewater administration, followed by rat 2, 4, 1 and 5 respectively. When oral administration of aloe Vera was given it was suggested that aloe Vera - helps eliminate most toxic materials. Hence the allergy was completely eliminated in all rats and the histamine level was minimum in rat5 followed by rat 4, 3, 1 and 2. Thus, the above investigation gives the proof that at a certain dosage aloe vera seems to be antiallergic in mammals (Noszal *et al.*, 2004; Alvarez, 2009).

Conclusion

The present research work revealed that the administration of Aloe vera extract showed antiallergic effects in allergic albino rats, therefore it was concluded that Aelo Vera extract is helpful to lower histamine level in treatment of albino patients. Aloe vera has been very useful to us from the healing and curing properties to even anticarcinogenic agent. The antiallergic nature is well defined in the present investigation. Thus, the medicinal activities of aloe vera are profound and wide with broad spectrum of treatments in the field of herbal medicine. It can be proved to be one of the ayurvedic agents without

causing any side effect can be a best curative. Science is trying to find and investigate such natural agents which can be useful for man in an economic as well as social way. The prospects of aloe vera are broad and it can prove a boon to many human lives as a medicine. In the present study, a single function viz. antiallergic aspect has been taken into consideration and shown that aloe vera is a diverse medicinal plant mild for mammals without causing any side effects.

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