

Testing of Kitazin for its Irritancy property in Rabbits

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Abstract

Kitazin (technical grade, 94% pure), is an organophosphate group of pesticide was evaluated for irritancy property on skin and mucous membrane of New Zealand rabbits. The intact and abraded skin areas and the mucous membrane of rabbits were exposed to the compound and irritancy reactions in terms of erythema, eschar formation and or oedema were observed at 24, 48 and 72 hrs of post treatment. The results revealed that mild erythema at 24 hrs of post exposure on the abraded skin areas where as the intact skin was found to be normal. The study concluded non-significant irritant property of the compound on skin and mucous membrane.

Key words: Kitazin, Irritancy, New Zealand Rabbit

Introduction

Kitazin, a new fungicide widely used against "Rice Blast" in agriculture (Anon, 1988a) exerts systemic fungicidal action and possesses some insecticide properties (Anon, 1988b). Wide spread use of kitazin as crop protectant in agriculture and the probability of exposure of human being and animals with this compound during various farm operations was considered for testing the compound for its irritancy property. The literature pertaining to toxicity evaluation of kitazin and data thereof was found very meager; no detailed information in respect to irritancy property of kitazin has been found in the literature searched. Therefore it was desired to evaluate the kitazin for irritant action on skin and mucous membrane of rabbits.

Materials and Methods

Test compound: The technical grade kitazin (94% pure) was procured from M/s, Bharat Pulverizing Mills Ltd. Bombay was employed in this study.

Experimental animals and their treatments: The apparently healthy adult New Zealand rabbits of either sex, inbred and maintained in small animal house, department of pharmacology were used to carry out this study. These animals were individually housed in wire meshed cages and maintained on standard laboratory diet (LAISC, Hyderabad) at room temperature 20-25 °C and relative humidity ranged between 70-75 %. All the animals had free access of

drinking water. After seven days period of acclimatization to the experimental conditions, rabbits were used in this study.

Test for skin irritancy: A total of six adult rabbits of either sex, three male and three female were used. The skin areas (one square inch) of each rabbit was clearly exposed after removing hairs on both the sides of back (right and left) with the help of curved scissor and a razor. One side of skin of each rabbit was abraded with the help of scalpel blade where the other side was kept intact. The test compound (approximately 0.5ml) was applied over intact and abraded skin areas on next day and was covered with gauze was secured tightly with the help of adhesive plaster.

Test for mucous membrane irritation: The above rabbits were also employed for irritancy test on mucous membrane. The condition of mucous membrane of each rabbit was confirmed to be normal prior to start of the experiment. The test material (0.1 ml) was instilled into one eye of each rabbit, the other eye served as control. The head of each rabbit was secured and its eyelids were kept open for a minute or two after treatment.

The skin areas and the mucous membrane of conjunctiva were observed for erythema, edema and eschar formation at 24, 48 and 72 hrs after post exposure as per Draize's method (Insecticide Act, 1968).

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Results and Discussion

The skin areas of rabbit exposed to the technical grade kitazin (94% pure) were revealed the appearance of mild erythema on abraded skin areas after 24 hrs of post exposure where as the intact skin areas were found to be normal.

The mucous membrane irritancy test revealed mild erythema of conjunctiva with a slight discharge from the inner corner of the eye after 24 hrs of post treatment.

It is apparent from the present study that the technical grade kitazin (94% pure) was non irritant to intact rabbit skin. However the compound was mild irritant to abraded skin, where it produces a slight erythema at 24 hrs of post exposure. The test compound was also found to be mild irritant to mucous membrane of conjunctiva where a slight erythema was observed and the effect was temporary. The mild erythema may be due cholinergic

vasodilatation (Rang and Dale, 1991) which was subsequently disappeared was evident for temporary effect of the compound.

From the present study it may be concluded that the technical grade kitazin (94% pure) had non significant irritancy action on skin and mucous membrane of rabbit.

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Avian influenza - situation in Pakistan

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The Ministry of Health in Pakistan has informed WHO of 8 suspected human cases of H5N1 avian influenza infection in the Peshawar area of the country. These cases were detected following a series of culling operations in response to outbreaks of H5N1 in poultry. One of the cases has now recovered and a further two suspected cases have since died.

Samples taken from the suspected cases have tested positive for H5N1 in the national laboratory and are being forwarded to a WHO H5 Reference Laboratory for confirmation and further analysis. The MoH is taking steps to investigate and contain this event, including case isolation and contact tracing and monitoring, detailed epidemiological investigations, providing oseltamivir for case management and prophylaxis, reviewing hospital infection control measures and enhancing health care-based and community-based surveillance for acute respiratory infections.

WHO is providing technical support to the MoH in epidemiological investigations, reviewing the surveillance, prevention and control measures that have been implemented and carrying out viral sequencing of avian and human isolates.

Multiple poultry outbreaks of H5N1 influenza have been occurring in Pakistan since 2006. In 2007, there have also been outbreaks in wild birds. A majority of the outbreaks discovered have been in the 'poultry belt' of North-West Frontier Province, particularly in the Abbottabad and Mansehra area and cases of infection in wild birds have been identified in the Islamabad Capital Territory.