

## **Toxicity Test of EM2 with Chickens and Tomato Plants**

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### **Introduction**

The introduction of any fertilizers, biological materials, pesticides and the like is required to be passed by the Fertilizer and Pesticide Authority. Regularly, APNAN would send EM2 to the Philippines for research purpose and the Department of Agriculture has to certify that is a non-toxic material for this purpose the Bureau of Soils and Water Management. For this, a toxicity test on chickens and tomato plants were carried out. The objectives of the study were:

1. To determine the effects of EM2 on the growth of chickens.
2. To determine if EM2 could cause adverse effects on tomato plants.

### **Methodology**

#### **Test with chickens:**

Ten day-old broiler chicks were secured and divided at random into two groups. One group of five (5) chicks was treated as control and the other group was treated with EM-2. Each chick was weighed on the first day. The EM-2 treated chicks were sprayed with a 1:2,000 solution of EM-2 before putting them in the cage, The control chicks were put directly in their respective cage without spraying them with EM-2. A 25-watt electric bulb was placed at the middle of the two wire cages, thus the two groups shared with the heat generated by the bulbs. The heater was provided until the third week. Weight of the individual chicks were obtained weekly until the fifth week when the chickens were slaughtered to determine if EM-2 has adverse effects on the internal organs and meat quality.

#### **Test with tomato plants:**

Seeds of tomato were sown in a seed box. After two weeks, ten healthy plants were grown individually in plastic containers, each containing two kilos of soils. Five plants were pricked on the stems with sterile pins and immediately sprayed with a 1:2,000 dilution of EM-2 solution. Five plants were untreated as control plants.

### **Results and Discussion**

#### **Test with chickens:**

The weekly weight of the chickens are presented in Table 1. The results showed that EM-2 did not adversely affect the weight of the chickens. The average weight of the forty days old chickens in the control was 1.533kg whereas the EM-2 treated chicken was 1.062kg. However, if the initial weight is to be considered, the percentage increase from the initial weight to the final weight was slightly higher in the control birds, which was 3.0568% whereas, the increase in the EM-2 treated was only 2.9715%. This difference between the control and the EM-2 treated is not significant. As far as the quality of meat of the chickens is concerned, there was no difference between the control birds and the EM-2 treated birds. Furthermore there were no abnormalities observed in the internal organs of the EM-2 treated birds.

**Table 1. Effects of EM2 mixed with feeds and drinking water on the weight of chickens\***

Treatments	Weekly weight in					
	Initial weight	1st week	2nd week	3rd week	4th week	5th week
<b>T1</b>						
Chick	45.8	90	343	585	1105	1460
Chick	51.5	102	362	672	1324	1695
Chick	52.5	104	395	742	1363	1523
Chick	43.7	80	307	580	1169	1470
Chick	50	100	356	646	1244	1520
Total	243.5	476	1763	3225	6205	7668
Mean	48.7	95.2	352.6	645	1241	1533.6
<b>T2 EM Treated</b>						
Chick	53.5	106	407	718	1330	1685
Chick	51.2	102	362	606	1150	1703
Chick	52.5	104	390	709	1312	1722
Chick	51.8	103	381	660	1190	1429
Chick	51.7	103	378	686	1224	1470
Total	260.7	518	1918	3379	6206	8009
Mean	52.14	103.6	383.6	675.8	1241.2	1601.8

\*Duration: July 22, 1992-August 31, 1992.

**Test with tomato plants:**

The EM-2 treated plants all grew unaffected by the EM-2 solution. All plants both the control and the EM-2 treated did not develop any disease problem.

**Conclusion**

These tests showed that EM-2 is not toxic and do not carry any disease that can affect chicken and tomato plants.