HYPOCHOLESTEREMIC ACTIVITY OF COW URINE ARK AND ALOE VERA IN POULTRY

Anuradha Patel and R.K.Sharma

Department of Veterinary Pharmacology and Toxicology.

College of Veterinary Science and Animal husbandry, N.D.V.S.U.,Jabalpur

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Corresponding Author : anuradha.patel190@gmail.com

ABSTRACT

A study was conducted to assess out the hypocholeseteremic activity of Cow urine ark and Aloe vera extract in broilers. A significant decrease was observed in serum cholesterol,triglycerides,total lipids, LDL and VLDL.Significant increase was reported in HDL levels. The study reveals that Cow urine and Aloe vera extract has marked hypolipidemic activity.

KEYWORDS: Serum cholesterol, hypocholeseteremic, triglycerides, LDL,VLDL,HDL .

INTRODUCTION

High levels of cholesterol in blood can trigger the emergence of cardiovascular disease (Goldstein et al., 1973). Provision of natural herbs that have potential antilipidemic effect, decrease the accumulation of intracellular fat and lowers adiposities in meat without influencing body weight. Cow urine has been described in 'Sushrita Samhita' and 'Ashtanga Sangraha' to be the most effective substance/secretion of animal origin with innumerable therapeutic values (Kekuda et al., 2010). Some herbal plants such as Allium Sativum has been reported to be hypocholeseteremic on egg yolk in birds (Quereshi *et. al.,* (2012). Aloe vera has a long history of both as an ornamental plant and a herbal medicine. Despite its wide use as a folk remedy over a long period of time, the biochemical details of its action on physiological/pathophysiological functions have not been systematically investigated. Hence this study was conducted to evaluate the hypolipidemic activity of Cow urine ark and Aloe vera extract in broilers.

MATERIALS AND METHODS

The urine was collected from Indigenous cows raised under standard feeding and managemental condition from Dayodaya Dairy Farm, Jabalpur.The ark of cow urine was prepared using as per the method of Khanuja *et al.* (2002) .The alcoholic extract of Aloe vera was prepared as per the method described by Pandey and Shrivastava (1989).

Forty, day old healthy broiler chicks were procured from Phoenix poultry farm, Jabalpur and used in the study. They were divided into four groups A, B, C and D containig 10 birds in each. They were kept separately and maintained under similar hygienic conditions, standard ration and water was provided *ad lib*. In treatment group B,C and D, 1 ml Cow urine ark,1 ml Aloe vera and 0.5 ml Cow urine ark and 0.5 ml of Aloe vera were given (orally) daily to birds for 45 days respectively. Birds of group A served as control. Two ml blood was collected from each broiler from jugular vein using 24 gauge needle in clean and dry test tube without using any anticoagulant. Collection was done on 14th, 28th and 42nd day of experiment. The serum was separated by centrifugation of blood at 3000 rpm for 10 minutes at room temperature and stored at -20ºC till further analysis. Lipid profile ie. Cholesterol , triglycerides , total lipids , LDL , VLDL, and HDL estimation was carried out following standard procedure in use.

Mean **+ -** SE of the data was calculated according to the method of Snedecor and Cochran (1994). Significant effect of treatment and interval was analysed by Factorial Design. Significant differences

between means of treatment and interval was compared by DMRT.

RESULTS AND DISCUSSION

The present study revealed that serum cholesterol,triglycerides, total lipids,VLDL and LDL levels in birds treated with combination of Cow urine ark and Aloe vera were siginificantly reduced on 42nd day of study period (P< 0.05) than in control group. There was significant increase (P< 0.05) in HDL levels in group D .The birds treated with Aloe vera showed significant reduction in lipid profile

Table 1. Effect of Cow urine ark and Aloe vera on Serum Cholesterol (mg/dl) level

Group	Day 14th	Day 28th	Day 42nd
A	165.79^{a}±0.85	166.01^{a}±0.63	166.78 ^{a}±0.54
B	164.51^{c}±0.30	163.34^{b}±0.13	162.75 ^{a}±0.16
C	159.33^{c}±0.04	158.32^{b}±0.10	157.34^{a}±0.06
D	163.15^{a} ±0.12	153.05^{b}±0.03	150.64^{a} ±0.11

Table 2. Effect of Cow urine ark and Aloe vera on Serum Triglyceride (mg/dl) level

Group	Day 14th	Day 28th	Day 42nd
A	273.48±0.17	273.20±0.04	272.21±0.04
B	267.98 ^{c} ±0.31	269.20 ^{b} ±0.04	269.21 ^{a} ±0.04
C	259.57 ^{c} ±0.09	248.12 ^{b} ±0.59	239.56 ^{a} ±0.05
D	249.27 ^{a} ±0.22	239.27 ^{b} ±0.22	229.53 ^{a} ±0.07

Table 3. Effect of Cow urine ark and Aloe vera on Serum Total Lipid (mg/dl) level

Group	Day 14th	Day 28th	Day 42nd
A	297.19 ±0.05	297.67±0.13	298.21±0.23
B	295.79 ^{c} ±0.44	294.46 ^{b} ±0.06	293.32^{a} ±0.10
C	292.45 ^{c} ±0.03	291.33 ^{b} ±0.37	290.74^{a} ±0.63
D	285.38^{a} ±0.36	281.44 ^{b} ±0.06	272.57^{a} ±0.59

Table 4. Effect of Cow urine ark and Aloe vera Serum Very Low Density Lipoprotein (mg/dl) level

Group	Day 14th	Day 28th	Day 42nd
A	54.69 ±0.03	54.64±0.09	54.47±0.02
B	53.59 ^{c} ±0.06	53.84^{b} ±0.09	53.84 ^{a} ±0.08
C	51.91 ^{c} ±0.01	49.62^{b} ±0.11	47.91 ^{a} ±0.01
D	49.85 ^{a} ±0.04	47.85^{b} ±0.04	45.90 ^{a} ±0.01

Table 5. Effect of Cow urine ark and Aloe vera on Serum Low Density Lipoprotein (mg/dl)level

Group	Day 14th	Day 28th	Day 42nd
A	79.44±0.11	80.59±0.13	78.51±0.08
B	78.44^{c} ±0.11	76.59^{b} ±0.13	74.51^{a} ±0.08
C	70.58^{c} ±0.10	68.23^{b} ±0.08	65.90^{a} ±0.54
D	65.52^{a} ±0.03	62.96^{b} ±0.22	56.04^{a} ±0.18

Table 6. Effect of Cow urine ark and Aloe vera on Serum High Density Lipoprotein (mg/dl)level

Group	Day 14th	Day 28th	Day 42nd
A	44.24± 0.07	43.75±0.32	44.27±0.40
B	45.34^{c} ±0.03	46.39^{b} ±0.08	46.50^{a} ±0.07
C	46.56^{c} ±0.10	47.46^{b} ±0.08	48.56^{a} ±0.14
D	46.50^{a} ±0.07	49.36^{b} ±0.12	52.51^{a} ±0.10

Mean with different superscript differ significantly (P< 0.05)

values as compared with Cow urine ark alone and control group. There was significant rise in HDL values in birds treated with Aloe vera as compared to birds treated with Cow urine ark and control group.

Cow urine ark and Aloe vera has long been used as a therapeutic agent (Reynolds and Dweck,1999). The hypolipidemic effect of Aloe vera may be due to presence of B-sitosterol, found in Aloe vera juice. B- sitosterol is a powerful anti-cholestromatic agent (Rajeswari *et al.,* 2012).Aloe vera gel high molecular weight fraction contains glucomannan polysaccharide with acetyl group (acemannan). The effect of mannan on triglyceride level was determined by Sood *et al.* (2008) which is due to inhibition of hepatic production of chylomicron. Two different antidiabetic components of apparent molecular weight 43500 Da isolated from the leaf pulp and the leaf skin of Aloe vera (Beppu *et al.,* 1993), and phytosterols isolated from the gel of Aloe vera (Tanaka *et al.,* 2006) have been shown to have anti diabetic activity. Similar changes in lipid profile were reported by Rajasekaran *et al. (*2006) and Kim *et al.* (2009). Cow urine caused significant reduction in lipid profile. This may be due to presence of antioxidant free radical scavenger in Cow urine responsible for hypocholesteremic activity (Murthi *et al.,* 2004).

From this study it may be concluded that Cow urine ark and Aloe vera extract has potential of lowering cholesterol level in broilers.although combination of Cow urine ark and Aloe vera tend to show better effect when compared to the effect of Cow urine ark and Aloe vera treated alone in broilers. Thus these medicaments may be used as feed supplementation in broilers.

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