

# Citrullus Lanatus (Watermelon) as Diuretic Agent: An *in vivo* Investigation on Mice

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## ABSTRACT

**Objective:** We report here a 4 days *in vivo* study on mice to unveil the diuretic effect of watermelon juice which substantiates its ethno medicinal claims by using pure juice from juicy red flesh present at the center of watermelon & compare its diuretic activity with well-known diuretic drug furosemide.

**Methodology:** Three groups of mice were marked as Control, Reference and Test. Each group comprise of 6 mice. Control group received tap water. Reference group was on 2 different doses of furosemide (20mg and 40mg) orally as per body weight while Test group received pure & homogenized watermelon juice.

**Results:** Results were collected and data clearly shows the significant diuretic effect of watermelon as compare to existing well known diuretic agents.

**Conclusion:** Natural products like watermelon may prove as better therapeutic agents if more work is done on this subject.

**Keywords:** *In vivo*, Watermelon, Diuretic, Furosemide.

## INTRODUCTION

Diuretics are medications designed to increase urine volume and used in antihypertensive treatment programs, heart failure and other edematous states.<sup>1,2</sup> The classification scheme of diuretics is based on mechanism of action.<sup>3</sup>

Citrullus lanatus (water melon) is a fruit that is about 93% water<sup>4</sup>, vitamins, sugar, minerals, fibers, carbohydrates<sup>5,6</sup> and other important constituents like cucurbitacin (which dilates the capillaries)<sup>7</sup> & L-citrulline (the amino acid required for the formation of nitric oxide essential to the

regulation of vascular tone and healthy blood pressure).<sup>8,9</sup>

Watermelon has alkalizing nature and serves as irreplaceable diuretic in dropsy (Edema) connected to the heart and kidney.<sup>5,7,8,10</sup> Watermelon Supplements, extract, juice and its seed oil shows antihypertensive activity.<sup>9,11-16</sup>

This fruit (Citrullus lanatus) has global importance against hypertension when compared with medicine<sup>4</sup> therefore we conduct here a 4 days *in vivo* study on mice to unveils its diuretic activity which substantiate its ethno medicinal claims by

taking pure juice from juicy red flesh present at the center of watermelon.

## MATERIALS AND METHODOLOGY

18 mice were divided into three groups marked as Control, Reference and Test. Each group comprises of 6 mice. Control group received tap water and placed in diuretic cage. Reference group were again divided into 2 sets of mice and each set consist of 3 mice received 20mg & 40mg of furosemide orally as per body weight. Test group received pure & homogenized watermelon juice. Each group of mice was placed in diuretic cage for 1-4 hours (See Table 1).

## RESULT

Results were collected and data clearly shows the significant diuretic effect of watermelon and it is confirmed by the results of this in vivo investigation on mice, which shows mean amount of urination in group of 6 mice treated with watermelon juice 200 $\mu$ l which is more than the diuresis produced by very well known drug furosemide even at different doses.

## DISCUSSION

Diuretics used to increase urination but it has side effect that's why people now a day starts focusing on natural substances which are of global importance because of their low side effects, accessibility and affordability.

Watermelon as its name implies, is a good source of pure water and serves as excellent diuretic. To unveil the diuretic effect of water melon we conduct 4 days in vivo study on mice. Table 1 shows the group wise division of 18 mice into three groups Control, Reference and test each group comprise of 6 mice. Control group which was treated with tap water produce mean

urination of 33 $\mu$ l. Reference group which was subdivided into 2 sets each set received different dose of furosemide according to their body weights, set A was treated according to the adult dose of 40mg with mean urination of 166.66 $\mu$ l and set B treated according to the adult dose 20mg shows mean urination of 133.33 $\mu$ l. Test group was treated with pure and homogenized watermelon juice and this group produced mean urination of 200 $\mu$ l. In Figure 1, here we can see that the least amount of diuresis was produced by control group whereas reference group shows diuretic effect but watermelon shows the significant amount of diuresis as compare to control and reference group.

## CONCLUSION

Natural products are central to biology and medicine and serve as important source of compounds for drug discovery. How to find and evaluate bioactive natural products is critical to the achievement of drug discovery from natural products. Citrullus lanatus (water melon) juice has potential to produce diuresis and it may be proved as effective and beneficial diuretic agent with minimum side effect.

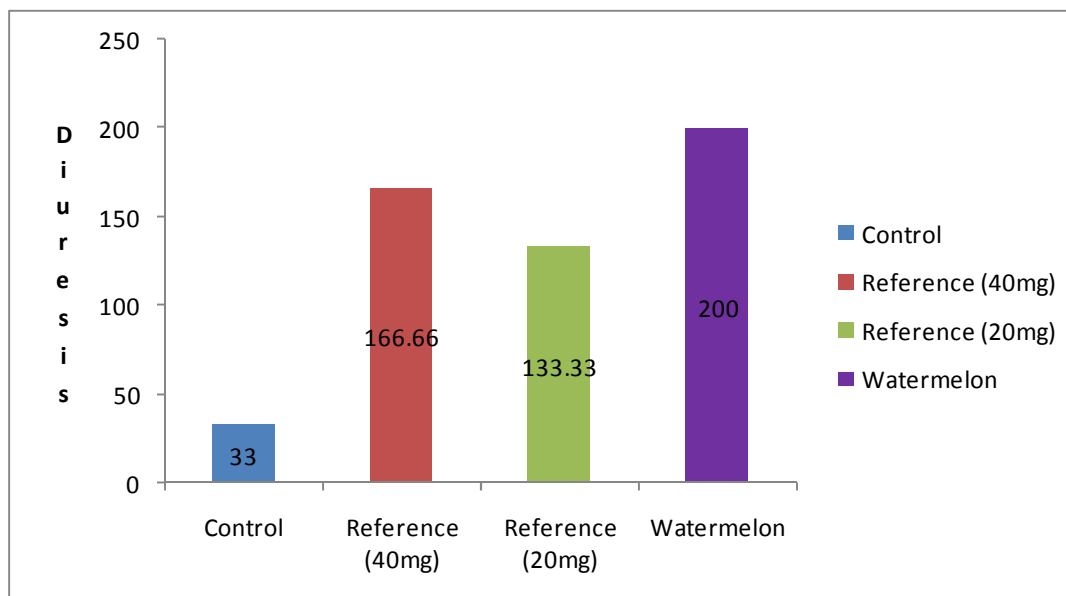
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**Table 1.** The group wise division of 18 mice into three groups Control, Reference and test

Group Name	Weight of Mice in Kg	Drug Received	Time Interval	Volume of Urination In $\mu$ l	Mean Urination in $\mu$ l
Control	1. 0.023	Water as Normal Feed	1-4hours	1. 0	33.33
	2. 0.023			2. 0	
	3. 0.022			3. 0	
	4. 0.020			4. 0	
	5. 0.020			5. 0	
	6. 0.027			6. 200.00	
Reference A	1. 0.021	Furosemide 40mg		1. 500.00	166.66
	2. 0.025			2. 0	
	3. 0.020			3. 0	
Reference B	1. 0.024	Furosemide 20mg		1. 100.00	133.33
	2. 0.025			2. 0	
	3. 0.030			3. 300.00	
Test	1. 0.027	Water Melon		1. 250.00	200.00
	2. 0.021			2. 500.00	
	3. 0.026			3. 250.00	
	4. 0.025			4. 0	
	5. 0.022			5. 200.00	
	6. 0.025			6. 0	

**Figure 1.** Diuretic effect of watermelon in comparison with reference drug Furosemide 40mg and 20mg