SUMMARY

1. The plant *Clerodendron colebrookianum* Walp (CC) belonging to the family verbenaceae is a shrub indigenous to North – Eastern Region of India.

2. The leaves of the plant are used as home remedy for the treatment of hypertension by a large section of people belonging to different communities of hills and plains of North – Eastern India.

3. Atomic absorption spectrophotometric analysis (AAS) shows that the plant *Clerodendron colebrookianum* (CC) possesses higher quantity of Mg in both leaf (41.5 ppm) and seed (29.98 ppm).

4. During winter (Nov-Dec and Jan-Feb) the Mg content in the leaves was recorded at higher compared to other seasons of the year.

5. Presence of considerable amount of Fe in the leaves (14.2 ppm), and seeds (8.25 ppm) was recorded.

6. Very low amount of Cu (0.1 ppm in leaf and 0.2 ppm in the seed) was noticed.

7. The quantity of Mn in the leaves seems to be higher (40.5 ppm), while in the seeds its quantity is only 14.6 ppm.

8. The leaves of CC possess 2.5 ppm Zn, and the seed possesses 1.4 ppm Zn only.

9. Lipids and lipoprotein plays significant role in the process of atherosclerosis.

10. Many plant species possesses hypolipidemic potential. Both the CC glycoside and methanol extract of CC has been used to evaluate the lipid profile in C3H mice.

11. Both CC glycoside (@20mg/kg b w/day) and ME of CC (@40mg/kg b w/day) were fed orally to male mice for a period of 28 days and the relative potency of the CC glycoside was compared with the known drug gemfibrozil. Total cholesterol (TC), Triglyceride (TG), High density lipoprotein (HDL) and Low density lipoprotein (LDL) were estimated from the serum of both the control and treated animals on 28th day of treatment.

12. Significant depletion of TC (20%), TG (53%) and LDL (67%) was observed in the mice group received ME of CC.

13. Significant elevation of serum HDL (22%) was recorded in the mice group treated with ME of CC.
14. Significant reduction of TC (34% and 38%); TG (20% and 26%) and LDL (62% and 69%) was observed in hyperlipidemic mice group treated with CC glycoside and gemfibrozil respectively.

15. The HDL level remained above the normal control was observed in hyperlipidemic mice group treated with CC glycoside and gemfibrozil respectively.

16. Ratio of the mean value of different lipid fraction viz.- TG:TC, LDL:TC, LDL:TG and LDL:HDL were reduced in the ME extract treated group compared to the control, except enhanced ratio of HDL:TC and HDL:TG.

17. The CC glycoside at a dose of 20 mg/kg b w/day caused significant depletion of hepatic lipid profile in hyperlipidemic mice group.

18. Maximum depletion of hepatic TC (85%) was observed in hyperlipidemic mice group on 28th day of treatment with CC glycoside. Identical notation was also seen in case of hepatic HDL.

19. The hepatic TG level was elevated by 9% on 7th day of treatment with CC glycoside, whereas the hepatic TG level was significantly reduced by 87% on 28th day of treatment with CC glycoside in hyperlipidemic mice.

20. The ME of CC at a dose of 40mg/kg b w/day was effective in significant depletion of hepatic lipid profile in hyperlipidemic mice.

21. Maximum lowering of hepatic TC was recorded by 77% on 28th day of treatment with ME of CC in hyperlipidemic mice group; whereas gemfibrozil at a dose of 20 mg/kg b w/ day reduced hepatic lipid profile by 62% in the same treatment schedule.

22. Similarly, on 28th day of treatment with ME of CC, maximum depletion of TG was observed (69%) in hyperlipidemic mice group.

23. The ME of CC also caused reduction of hepatic HDL level; maximum reduction was observed on 28th day of treatment, but the higher value maintains above the normal control.

24. Overall percentage reduction (OPR) of the findings showed that, both the CC glycoside and ME of CC were effective in encountering the high fat diet induced hyperlipidemia in mice. The OPR of hepatic lipid profile was observed 7.54%, 41.9%, 75.33%, and 96.21% in 7th, 14th, 21st and 28th day of
treatment with CC glycoside in hyperlipidemic mice. While, the OPR for ME of CC was observed as 9.64%, 26.34%, 48.13% and 82.24% respectively in 7th, 14th, 21st and 28th day of treatment.

25. Effects of CC glycoside on certain elements and lipid profile were assessed in the liver and heart of C3H mice on 7th, 14th, 21st, 28th, and 45th day of experimentation.

26. The administration of CC glycoside caused significant rise in the hepatic Mg level by 13% on 14th day compared to that of control group. Whereas, on the 45th day of treatment, the hepatic Mg was found to depleted insignificantly.

27. The Fe content of hepatic tissue was significantly elevated following the supplementation of CC glycoside in different days of treatment compared to that of control group.

28. No significant elevation or depletion of hepatic Mn content was noticed in the mice group after the administration of CC glycoside.

29. The Cu level in hepatic tissue was significantly elevated after administration of CC glycoside. The percentage increase in both 28th and 45th day of treatment shows significant increase, compared to the control group.

30. Following the supplementation of CC glycoside the hepatic Zn concentration was enhanced up to 28th day of treatment, but on or after 45th day, the same was dropped.

31. The hepatic TC and TG level in normolipidemic mice decreased significantly following the administration of CC glycoside in different experimental days.

32. The highest quantity of cardiac Mg was observed by 24% on 28th day, while exposed to CC glycoside.

33. The cardiac Fe content was significantly elevated by 35% on 28th day of treatment with CC glycoside.

34. No significant elevation or depletion of Mn was observed in cardiac tissue, while exposed to CC glycoside.

35. The highest percentage increase of Cu in cardiac tissue was recorded on 28th day of treatment with CC glycoside.
36. The percentage increase of Zn in the cardiac tissue of treated group increases with the increasing day of treatment schedule up to 45th day, following the supplementation of CC glycoside.

37. Following the supplementation of Mg deficient diet for a period of 15 days, both the serum and hepatic Mg content was depleted significantly, while no significant depletion of Mg was noticed in the cardiac tissue.

38. Enhanced Mg level was recorded in serum, liver and cardiac tissue after CC glycoside administration in the Mg deficient diet fed C3H mice group.