Phytochemical investigation like GC-MS, TLC and HPTLC study supports the result as concentration of terpenoids and steroids are more in *Heterophragma adenophyllum* as compare to other chemicals. Also according to literature survey terpenoids and steroids, viz β amyrin, lupeol, sitosterol and campesterol have antimicrobial and antioxidant activity and these compounds were found in *Heterophragma adenophyllum*.

A histochemical and phytochemical result demonstrates presence of alkaloid in leaves; pH-gradient technique was used for preparation of different fractions of alkaloid and was qualitatively identified. First time alkaloid were isolated and characterized from *Heterophragma adenophyllum* leaves and structure were proposed.

The methanolic extract of *Heterophragma adenophyllum* leaves showed maximum antioxidant activity; and their total phenolic and flavonoid content are also high. The phytochemical screening of *Heterophragma adenophyllum* extracts demonstrated presence of carbohydrates, glycosides, alkaloids, flavonoids, saponins, tannins and steroids. Likewise the physiochemical properties were also demonstrated.

The separated terpenoidal and steroidal fraction from ethyl acetate extract of the leaves of *Heterophragma adenophyllum* demonstrated broad spectrum antimicrobial activity against both gram positive and gram negative bacteria. This activity of fraction may be possible due to bioactive phytochemical are presence in the fraction. Bioactive compound from the fraction were isolated and identified as β amyrin, lupeol, campesterol, sitosterol and palmitic acid. These chemicals may be further use in development of antimicrobial formulation for the treatment of various infections. Thus the present study significantly proves that terpenoidal and steroidal reach fraction can be beneficial against antimicrobial agents.

The anti-hypertensive activity of ethyl acetate and chloroform extract significantly shows decrease in blood pressure, it supports the bioactive constituents was present in respective extract. Pharmacognostic, histochemical and phytochemistry results shows the presence of alkaloid in leaves, which may be the bioactive compound.
7. Conclusion

Thus the study provides for the first time evidence that showed biological effect of *Heterophragma adenophyllum* correlate with its folklore claim as an antioxidant, antimicrobial and anti-hypertensive drug.