CONCLUSION

In the present study, ten medicinally important plants are selected namely *Terminalia chebula*, *Punica granatum*, *Syzyium jambolanum*, *Aegle marmelos*, *Nyctanthes arbor-tristis*, *Annona squamosa*, *Acalypha indica*, *Momordica charantia*, *Tylophora indica* and seeds of *Zea mays* for identification of immunomodulatory compounds. Both cell and humoral mediated response were studied. Intraperitoneal administration of antigen induced extract on days 0, 21 and 42. The mice were bled on days 14, 28 and 49. Five plants namely TC, NA, TI, PG and AI shown high immunomodulatory activity on primary, secondary and tertiary immune responses on anti OVA IgG, anti OVA IgM and anti OVA IgA and no response on IgE.

These plants were purified by solvent fractionization using solvents like ethanol, chloroform, ethyl acetate. These solvent fractions were tested on mice and ethanolic extract of *Terminalia chebula* (TCE) has been identified as a potential plant showing immunomodulatory activity. Further TCE have been subjected to cell mediated response which shown high activity when compared to naïve mice that was used as control. Phytochemical studies were carried out to know the nature of compound which shows the presence of sapanins, phenols, flavanoids, triterpenes and glycosides.

TCE fraction was subjected to purification by silica gel column chromatography using benzene and ethyl alcohol (100; 90:20; 80:20; 70:30). Alike fractions were pooled by UV spectrophotometer and the homogeneity of the fractions were detected by Thin Layer chromatography (TLC).

The fractions obtained from silica gel chromatography were S1 to S16 which were tested on animal model for both humoral and cell mediated response and phytochemical studies carried out. The results indicate that S12 fraction shown highest stimulant activity and it is a phenol compound.

This S12 fraction was analyzed by using advanced analytical techniques. UV absorption of the fraction is at 254 nm indicating it a phenol. The mass of the compound is 194.16. The structure of the compound has been analyzed by Infra red spectrum and by carbon and hydrogen NMR spectrum. The predicted structure of the compound has been obtained and was identified.
as 4-Hydroxy-3-methoxycinnamic acid, which is an immunostimulant on humoral and cell mediated immunity.

In brief, 4-Hydroxy-3-methoxycinnamic acid compound was isolated from TC and it has found to be stimulating on IgG, IgM and IgA and without any response on IgE. It was immunomodulating antigen induced T-cell response. The adjuvant property of this compound may be extended to practical scenarios where boosting of immune response is needed in the case of pure antigen.