The study concludes that the seeds of *Trachyspermum ammi* and leaves of *Prosopis spicigera* possessed good caries inhibitory activity against *Streptococcus mutans*. The presence of most general phytochemicals might be responsible for their effects. It further reflects a hope for the development of many more novel chemotherapeutic agents or templates from such plants which in future may serve for the production of improved therapeutic agents. Additional studies shall help in elucidating the mechanisms by which these extracts affects virulence properties of *Streptococcus mutans*.

In the second study, the effects of seeds of *Trachyspermum ammi* and leaves of *Prosopis spicigera* on the genes involved in virulence factors of *Streptococcus mutans* and their influence on cariogenicity *in vivo* were analysed. On treatment with the different concentration of extracts, the reduction in biofilm was accompanied by repression of genes involved in biofilm formation as compared to the control. The *in vivo* study further supported this data, by showing promising effects in reducing smooth surface as well as sulcal surface caries.

In the third study, a novel compound, \((4aS, 5R, 8aS)\ 5, 8a\text{-di-1-propyl-octahydronaphthalen-1-(2H)-one}\), from the petroleum ether fraction from *Trachyspermum ammi* seeds shows promising anticariogenic effect against *S. mutans*. It significantly reduced adherence as well as biofilm formation, insoluble glucan synthesis by GTF and hydrophobicity. These results indicate that this compound possesses powerful anticariogenic potential. Nevertheless, the toxicity associated with direct consuming this compound and its effectiveness in oral cavity are the key issues to be addressed for the validation of its therapeutic use in dental caries.
The last study concludes that the plant extracts (*Acacia. nilotica, Cinnamum. zeylanicum, Syzygium aromaticum, Prosopis spicigera, Zingiber officinale* and *Trachyspermum ammi*) showed significant activity against most of the investigated multidrug resistant microbial strains. It is interesting to note that the extracts are not pure compounds and in spite of it, antimicrobial results were obtained, which only suggests the potency of these extracts. Plant based antimicrobials have enormous therapeutic potential as they can serve the purpose without any adverse effects that are often associated with synthetic compounds; hence isolation and purification of phytoconstituents from these plants may yield novel antimicrobials. However, it is necessary to determine the toxicity of the active constituents, their side effects and pharmaco-kinetic properties.