CONCLUSION

The occurrence of toxigenic fungi and mycotoxins in herbs pose serious health threats since their presence can cause ill effects rather than improving the quality of life. This study concludes that medicinal herbs and spices can be contaminated with mycotoxin-producing fungi. Not only the raw materials but processed herbs as well are susceptible to fungal contamination. Proper care must be taken for maintaining the conditions of temperature and moisture during storage. Quality control and surveillance at every stage of processing, packaging or marketing is necessary for the safety of the consumers. The present study provides a basis in assessing the degree of fungal and potential mycotoxin contamination in medicinal plants, herbs and spices and thus providing quality control.

Prevention is not always possible hence the alternate strategy becomes controlling fungal and mycotoxin contamination. The good anti-fungal and anti-mycotoxin property of spices especially clove and cinnamon was demonstrated in this study. Clove and cinnamon not only inhibited AFB<sub>1</sub> production in culture medium but in rice grains as well. Use of natural products as preservatives or abating mycotoxins is well accepted over chemicals. Since these spices are deemed safe to humans, they may be recommended for use in controlling toxigenic fungi and mycotoxins. Lactic acid exhibited high efficiency in degrading AFB<sub>1</sub>, and the degraded products formed were lesser toxic than AFB<sub>1</sub>. Using organic acids for detoxification of AFB<sub>1</sub> in food materials provide a safer method.
FUTURE PROSPECTS

Clove has been shown to inhibit the growth of *Aspergillus flavus* and *Penicillium citrinum* and production of mycotoxins in rice at laboratory level. Further studies can be carried out at large scale for controlling mycotoxins in food and feed during various stages of processing and as preservatives during storage. Studies for understanding the mechanism of specific inhibition of AFB$_1$ by clove can be extended to various enzymes involved in the biosynthetic pathway. AFB$_1$ degradation by lactic acid can be extended to real situations for removing AFB$_1$ in contaminated food grains.