

#### 4. Conclusion

In our previous study, we reported the interesting *in vitro* anti-*S. mutans* activity of the ethanolic wood extract of *A. myriophylla*. This gave rise to identify the compounds responsible for its antibacterial activity. The aim of our study was, on the one hand, to evaluate the *in vitro* antibacterial activity and the cytotoxicity of *A. myriophylla* wood used in the treatment of dental caries, with the objective of promoting the development of improved traditional medicines and, on the other hand, to identify the active ingredients in this plant species. The chemical investigation of the wood of *A. myriophylla* resulted in the isolation of a rare flavan-3,4-diol **1** together with nine known compounds (**2–10**). Compounds **2–5** were isolated herein from the genus *Albizia* for the first time. All the isolated compounds were evaluated for their cytotoxic activity against KB cells whereas those belonging to flavonoids were also tested for their antibacterial activity against three pathogens of medical importance. Among the tested compound, lupinifolin (**5**) was found to have the highest anticancer and antibacterial activities. The awareness of local communities should be enhanced by incorporating the traditional knowledge with scientific findings in order to promote cautious use of herbal medicine. This study reveals the preliminary scientific evidences for the traditional uses of *A. myriophylla* for dental caries. Our study also reported the significant result of the bacteriostatic property of *A. myriophylla* and its components against *S. mutans*, responsible for dental caries. Among the isolated compounds, lupinifolin (**5**) was found to be most active against *S. mutans*, and thus, it might contribute to the anticariogenic property of *A. myriophylla*. This result reveals the correlation between scientific evidence and the ethnomedical use of this plant against dental caries. Although lupinifolin (**5**) has been reported in several plants of Leguminosae including the root and aerial part of *Tephrosia lupinifolia* (Smalberger et al., 1974), the root of *Derris laxiflora* (Lin et al., 1991), the stem of *D. reticulata* (Mahidol et al., 1997), and the root of *Euchresta formosana* (Matsuura et al., 1995), there is no record in the genus *Albizia*. This study revealed for the first time the role of lupinifolin (**5**) as the main anti-compound in *A. myriophylla*. To best of our knowledge, this is the first report of lupinifolin (**5**) isolated from *A. myriophylla* wood and the antibacterial activity of this compound against cariogenic *S. mutans*. Considering the strong anti-*S. mutans* activity of lupinifolin (**5**), this flavonoid may have a potential for further development as natural anti-cariogenic agent. Further research is necessary to establish the antibacterial mechanisms of action of this compound against *S. mutans* or other cariogenic bacterial strains.