

Abstract

Impact of *Chenopodium album* and *Allium sativum* Extracts Alone and in Combination against Mastitogens [†]

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Abstract: In the dairy sector, mastitis is one of the most important and costly diseases because, due to it, the world's economy faces about 35 billion dollar loss each year. Bacterial pathogens that cause mastitis are called mastitogens. Among these bacterial species, *Escherichia coli*, *Staphylococcus aureus*, *Streptococcus uberis*, *Streptococcus agalactia*, and *Streptococcus dysgalactia* are the most important. Mastitis is treated with antibiotics; however, due to their improper, excessive, and irrational usage, these pathogens have become resistant to them. Drug residues in milk is also a factor resulting in multi-drug resistance (MDR) in mastitogens that cause treatment to become ineffective. In Pakistan, several ethnoveterinary plants, such as *Allium sativum* (garlic) and *Chenopodium album* (goosefoot), are used for the treatment of mastitis in cattle and buffalo. For this purpose, we prepared aqueous and methanol extracts of *A. sativum* and *C. album*. In the agar well diffusion method, the aqueous *A. sativum* showed strong activity against *Staphylococcus aureus*, i.e., 20 mm, whereas the methanolic extract of *C. album* gave an 11 mm zone of inhibition against *Staphylococcus aureus*. By combining the extracts of *A. sativum* and *C. album*, they give a synergistic effect, especially against *E. coli*. Results showed that the zone of inhibition against *Staphylococcus aureus* was 16 mm, against *E. coli* was 22 mm, and against *Streptococcus uberis* was 5 mm. Our study is in agreement with the use of *A. sativum* and *C. album* in cases of mastitis and recommends their combined use for better results.

Keywords: *Allium sativum*; *Chenopodium album*; mastitis

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