This study investigated the acaricidal effects of methanolic and ethanolic crude extracts of *Calpurnia aurea*.
against the Melophagus ovinus or sheep ked at different time intervals using in vitro adult immersion test. For this study, Melophagus ovinus was collected from naturally infested sheep from Ambageiorgis district, central Gondar zone, Amhara region and placed into petri dishes (n=10). Both methanolic and ethanolic crude extracts of *Calpurnia aurea* were treated with n-hexane, Dichloromethane, Ethyl acetate and Water for fractionation and tested for their insecticidal activity against M. ovinus. At concentration of 6.25, 12.5, 25, 50 and 100mg/ml, all fractionates of methanol and ethanol crude extracts showed 100% effectiveness against M. ovinus within 6 hours of exposure. However, mortality of M. ovinus increased as concentration and exposure time to methanol and ethanol extracts of different fractionates increased within the first one hour. On qualitative phytochemical investigations, the crude extracts of *Calpurnia aurea* had alkaloids, flavonoides, phenolic compoundes, saponin and and tannins. The results of this study proved the acaricidal effect of all fractionates of methanol and ethanol crude extracts of *Calpurnia aurea* against Melophagus ovinus. Hence, *Calpurnia aurea* can be considered as a potential candidate for biocontrol of Melophagus ovinus and for the discovery of active compounds that substitute commercially available acaricides.

**Keywords:** *Calpurnia Aurea; Chromatography; Ectoparasites; Mallophagus Ovinus*
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