

ABSTRACT

Vegetables are important commodities that serve as a major source of plant-based protein for society. However, their productivity is often disrupted by plant pests and diseases such as weeds, insects, and pathogens. One of the main causes of yield reduction is root-knot nematodes (*Meloidogyne* spp.), which not only attack cultivated crops but also reproduce on weeds that act as alternative hosts and distribution agents in agricultural ecosystems. This study aims to identify weed species that serve as alternative hosts for root-knot nematodes associated with vegetable crops in the Gayo Highlands. The research was conducted from January to May 2025 in vegetable farms located in Kute Panang District, Central Aceh, and in the Plant Pest and Disease Laboratory, Faculty of Agriculture, Malikussaleh University, Aceh Utara. Weed sampling was carried out using an exploratory method, while qualitative and quantitative analyses were used to identify weed species, determine their dominance, and analyze weed diversity. The results showed that *Galinsoga quadriradiata* was the most dominant and widely distributed weed species. Weed species identified as alternative hosts for *Meloidogyne* spp. were *Galinsoga quadriradiata*, *Galinsoga parviflora*, *Solanum nigrum*, and *Ageratum conyzoides*. The highest nematode population (up to 106 individuals per sample) and susceptibility levels were recorded in *G. quadriradiata* and *G. parviflora*, while the lowest nematode population was found in *S. nigrum*.

Keywords: Alternative hosts, *Meloidogyne* spp., vegetables, weeds