considered specialist predators (31). McGlynn reported 147 species of ants that have been collected in non-native habitats in various parts of the world (32).

Although Iranian Samsum ants share some characteristics of invasive species (25), it is widely believed that they should be still considered a tramp species. Unlike invasive species, tramp species do not spread rapidly or dominate new environments but are tied to human activities. Such species prefer disturbed habitats in close association with humans. The incidence of stings by these ants is likely to increase with the accelerating rate of urbanization. Urban development and sprawl disrupt natural ecosystems, bringing humans in contact with those species that thrive in disturbed habitats. In addition, increased trade and travel provide invasion routes for exotic ants (11).

Anaphylaxis has been attributed to both of the medically important species, *P. sennaarensis* and *P. chinensis* (13, 18). Despite reports on the severe clinical symptoms, e.g. systemic allergic reactions, anaphylactic shocks, asthma and even death, in response to stings and bites from other ant species (11), the effects of the Iranian populations of *P. sennaarensis* are usually mild, i.e. at the worst case, forming papules and dermal itching due to multiple stinging. It should be noted that clinical manifestations due to ant stings are affected by the quantity of venom injected, the location of the stung area in terms of skin thickness, proximity to a vessel, its relation to extremities, head and neck or mucosa and finally the immune status of the patient. The efficacy of the sting as the defense weapon of ants is based on the toxic properties of the secretion produced by their venom gland. It is believed that the ability to produce pain is, in defensive terms, the most important aspect of these venoms (33). Fire ant venom contains piperidines and pyrazines, which cause a burning sensation in stung individuals, and a small percentage (< 1% volume of the venom secretion) of proteins, which can cause anaphylaxis in those stung (34). Peptides are also responsible for inducing pain and tissue damage (27). We believe that lack of the systemic reactions after stings of the Iranian populations of *P. sennaarensis* is due to the absence of protein components in their venom secretions.

The non-peptide venom constituents of *P. sennaarensis* were not known until this study. These components are not only species-specific, but different among geographical populations of a single species. Piperidines have been twice detected in *Pachycondyla* spp. In the first case 2,5-piperazinedione was separated from a multi-protein matrix in the venom of *Pachycondyla apicalis* and in the second, 2,6-