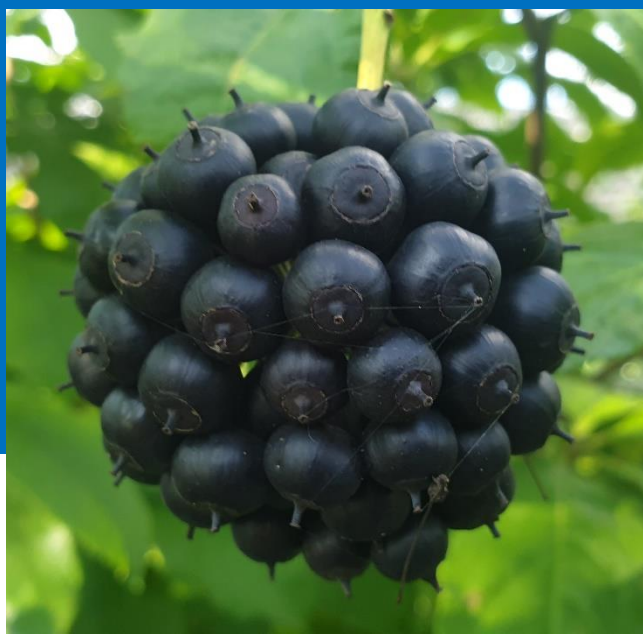


Main Disease and Pest Incidence Aspect of *Eleutherococcus senticosus*

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Abstract

In order to promote regionally specialized crops in the Gangwon region, the patterns of disease and pest occurrence of *Eleutherococcus senticosus* were investigated during the growth period at Fruit and Vegetable Research Institute in Cheorwon County, Gangwon State Province for two years from 2022 to 2023. During the growth period of *Eleutherococcus senticosus* the occurrence patterns of major diseases were as follows. In 2022, Leaf spot caused by *Phoma* sp. began to appear in late May. Damage from the disease spread in late July and it occurred throughout cultivation field after September. Powdery mildew caused by *Sphaerotheca fusca* occurred and caused damage in mid-June and did not occur after July. In 2023, leaf spot disease began to occur in mid-May, the damage spread in mid-July, and the highest damage occurred in mid-September. Powdery mildew did not appear until late August. During the growth period of *Eleutherococcus senticosus*, the occurrence patterns of main insect pests were as follows. In 2022, black-tipped leafhopper, *Bothrogonia japonica*, occurred in late April, the early stage of growth, gradually decreased until mid-June and did not occur after late June. *Arboridia* spp. appeared in late April, peaked in mid-May, did not appear until July, and then appeared again in August. *Metcalfa pruinosa* occurred most often in early July and mainly caused damage to fruit-set clusters, while aphids occur during the early growth period in May and the flowering period in July. In 2023, black-tipped leafhopper appeared from early May, did not occur after June, and some occurred in early August. *Arboridia* spp. appeared in May and continued to occur throughout the growth period, and gradually decreasing from August onwards. Aphids also appeared in mid-May, causing damage to early-growing shoots, and continued to occur until August, mainly damaging flower buds during the flowering period. *Halyomorpha halys* and *Plautia stali* mainly occurred after August and caused damage to fruit cluster. From now on, we will continue to investigate the patterns of disease and pest occurrence of *Eleutherococcus senticosus* during the growth period and select major disease and pest control agents suitable for the growing season to establish a production base for high-quality raw materials for the stable supply of medicinal materials for it, which has recently seen a rapid increase in demand for pharmaceuticals and health supplements.

Material & methods

Location

38°25'16.82"N, 127°38'87.65"E in Cheorwon County, Gangwon State Prov. (Fruit and Vegetable Research Institute, Gangwon State ARES)

Treatments

The degree of disease occurrence was visually inspected every 10 days in cultivation field of *Eleutherococcus senticosus* during the growth period from 2022 to 2023.

In cultivation field of *Eleutherococcus senticosus*, yellow-colored sticky traps(150x270mm) were installed at 1.2m height and at 10m intervals and inspected every 10 days to investigate the frequency of insect pest occurrence during the growth period from 2022 to 2023.

Degree of disease occurrence
0 : No disease symptoms observed
1 : Incidence rate less than 1% 3 : Incidence rate 1~10%
5 : Incidence rate 10.1~30% 7 : Incidence rate 30.1~50%
9 : Incidence rate more than 50.1%

Degree of insect pest disease occurrence
0 : No occurrence observed
1 : 1~5 pests/leaf 3 : 6~10 pests/leaf
5 : 11~50 pests/leaf 7 : 51~100 pests/leaf
9 : more than 101 pests/leaf



Fig. 1. A view of Cultivation field of *Eleutherococcus senticosus* and yellow-colored sticky traps installed in Cheorwon County, Gangwon State Prov.

Results

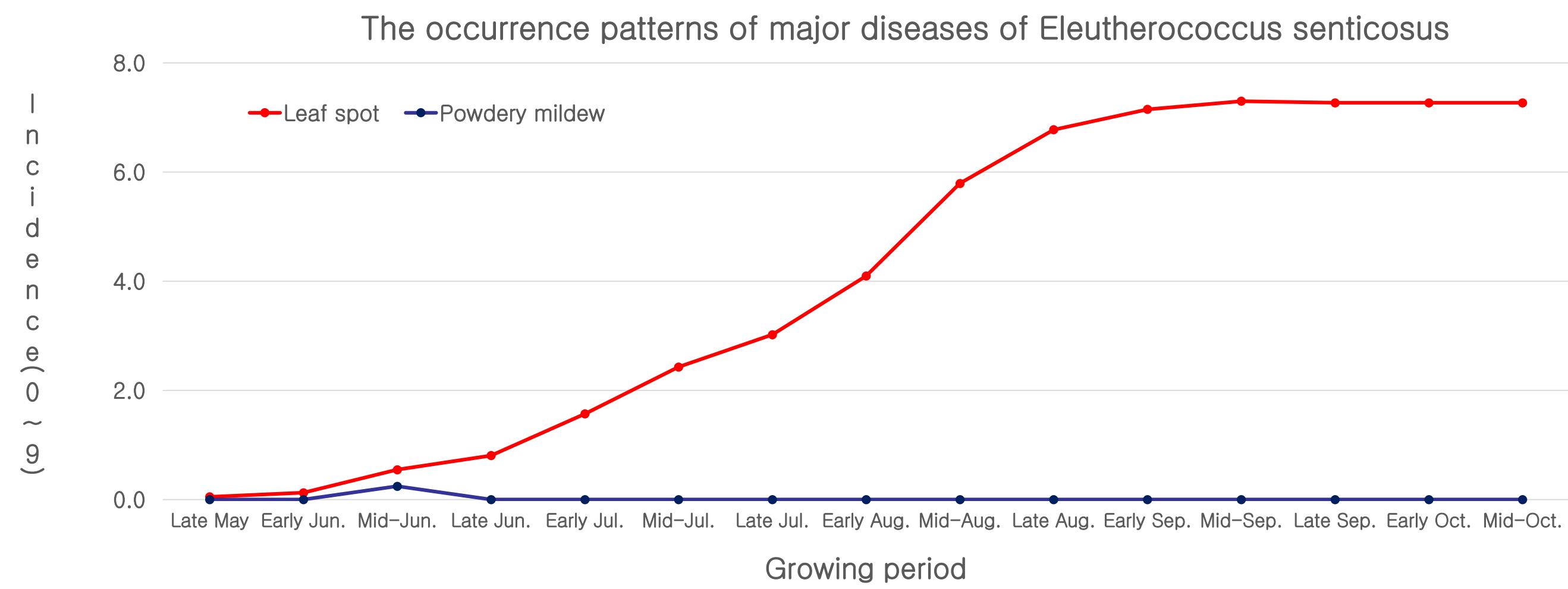


Fig. 2. The occurrence patterns of major diseases of *Eleutherococcus senticosus* during the growth period in 2022 at Cheorwon County, Gangwon State Prov.

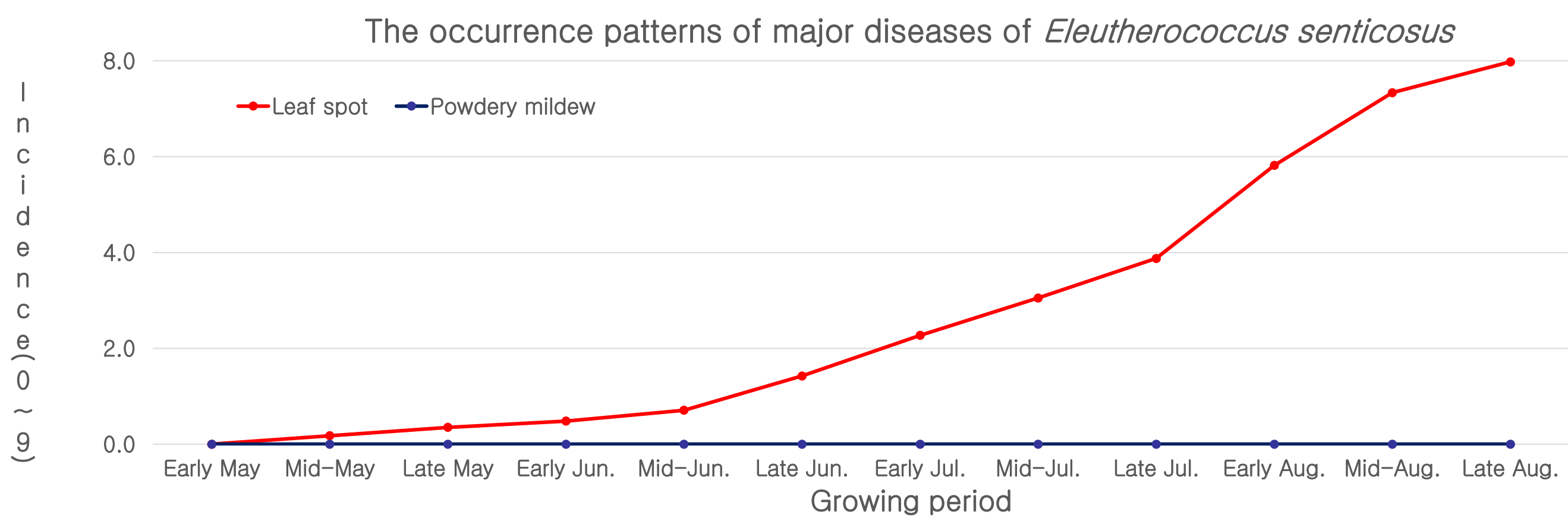


Fig. 3. The occurrence patterns of major diseases of *Eleutherococcus senticosus* during the growth period in 2023 at Cheorwon County, Gangwon State Prov.



Fig. 4. Damage symptoms caused by leaf spot and powdery mildew on *Eleutherococcus senticosus* during the growth period

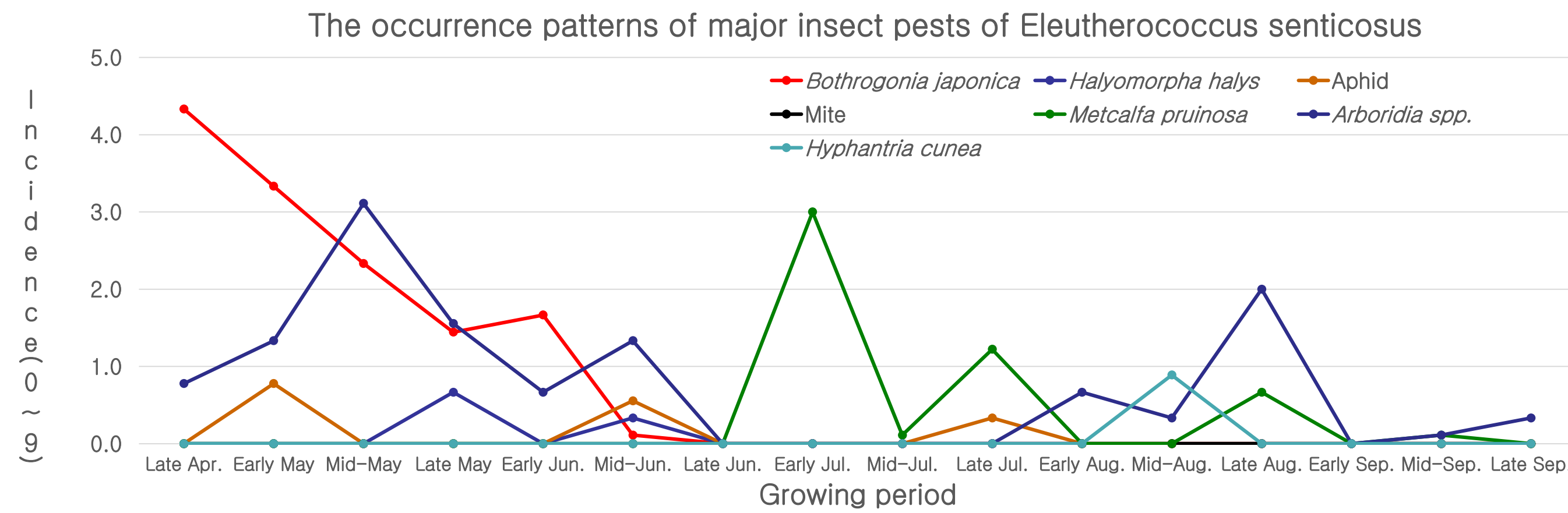


Fig. 5. The occurrence patterns of major insect pests of *Eleutherococcus senticosus* during the growth period in 2022 at Cheorwon County, Gangwon State Prov.

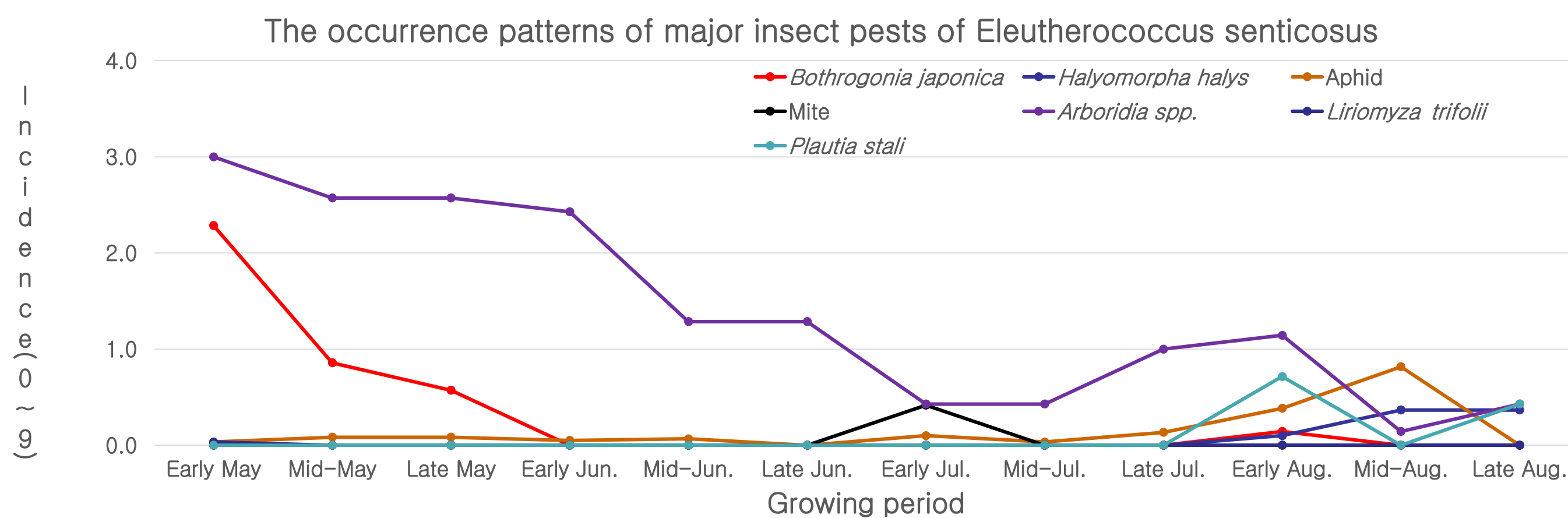


Fig. 6. The occurrence patterns of major insect pests of *Eleutherococcus senticosus* during the growth period in 2023 at Cheorwon County, Gangwon State Prov.



Fig. 7. *Bothrogonia japonica*, *Arboridia* spp., aphid, and *Plautia stali* occurred on *Eleutherococcus senticosus* during the growth period

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