

Introduction

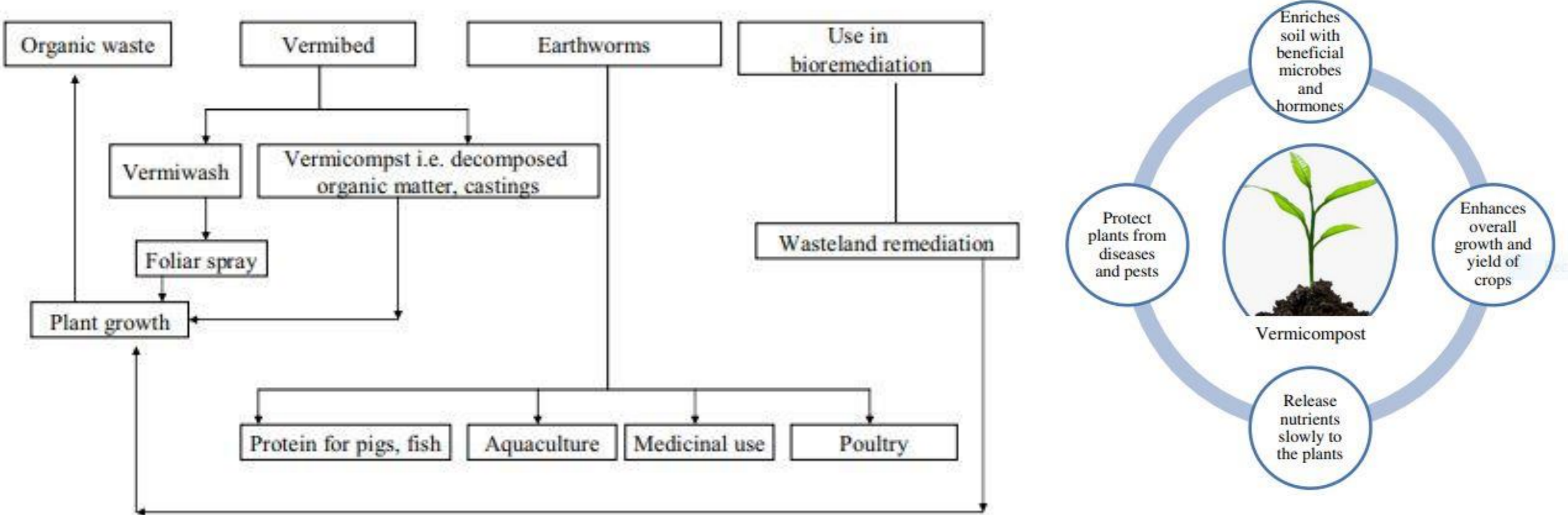
Conclusions

**PROBLEM** —————> Organic waste disposal has caused increasing environmental and economic problems. Also the high cost of synthetic fertilizers is a problem for farmers.

**AIM** —————> The purpose of this investigation was to assess the influence of the low cost vermicompost technology (which uses the organic wastes) on the crop production.

Vermicompost is rich in macro and micronutrients, vitamins, growth hormones, enzymes such as proteases, amylases, lipases, cellulase, and chitinase, and immobilized microflora. Vermicompost can be produced "on-farm" at a low cost using simple techniques, whereas chemical fertilizers are high-tech and expensive products produced in factories. Vermicompost improves germination, growth, biomass and yield in plants. Vermicompost increased mineral nutrients, antioxidant activity and total phenolics in plants. Vermicompost has been widely used for the management of plant diseases and pests.

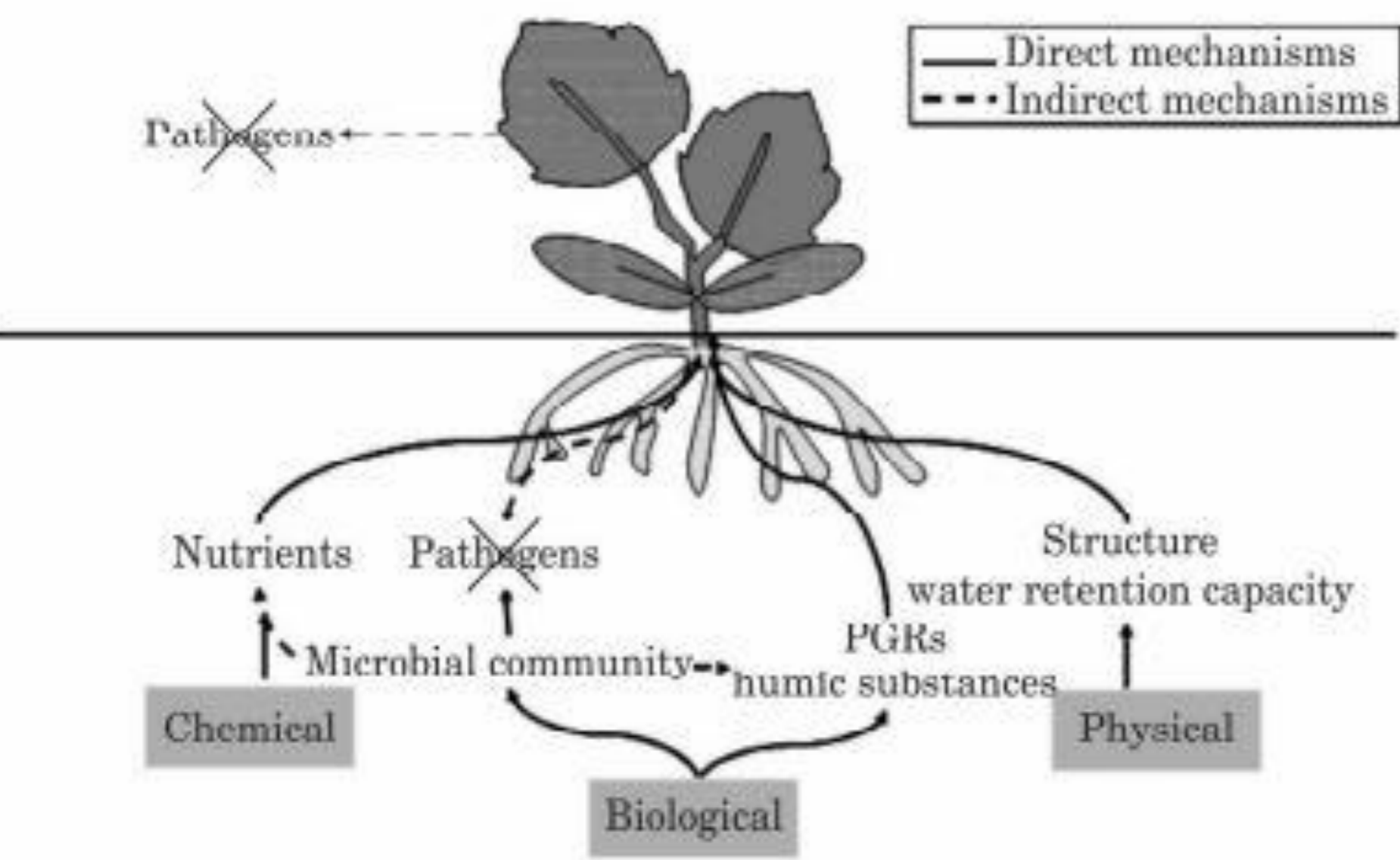
Results



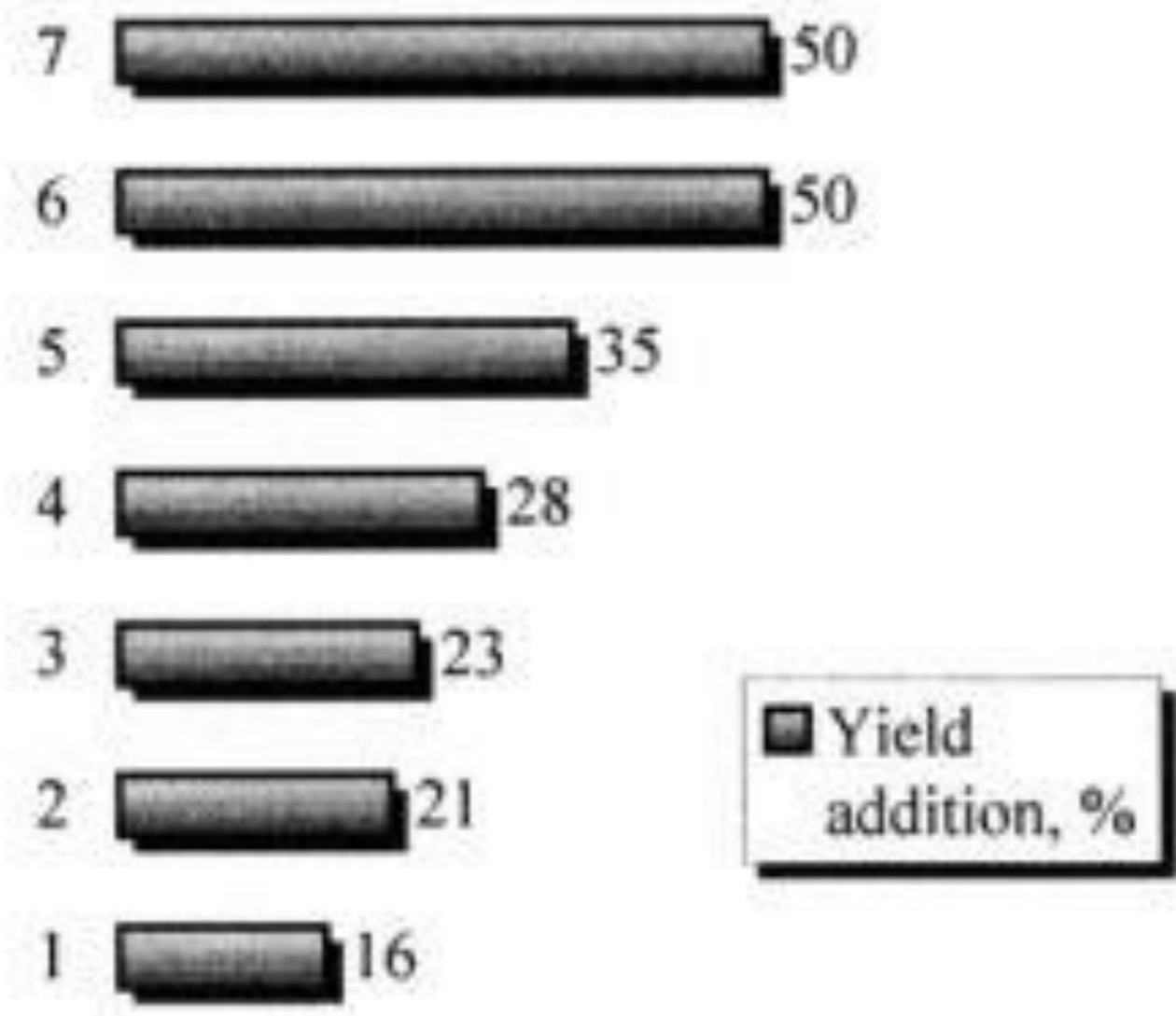
Recycling organic waste through vermitechnology (Sharma et al., 2009).

What happens with soil, while adding vermicompost to the crops (Yatoo et al., 2021).

How plants are affected by vermicompost application (Joshi et al., 2015).



Composted materials may directly or indirectly affect plant growth and yield by chemical, biological and physical mechanisms (Gomez-Brandon et al., 2015).



Yield increase (%) of various crops with vermicompost extracts. Plants: 1 – oats, 2 – tomato, 3 – carrot, 4 – beat, 5 – cabbage, 6 – corn, 7 – sunflower (Gamaley et al., 2001).

Nutrient	Vermicompost (%)	Garden compost (%)
Organic carbon	9.8-13.4	12.2
N	0.51-1.61	0.8
P	0.19-1.02	0.35
K	0.15-0.73	0.48
Ca	1.18-7.61	2.27
Mg	0.093-0.568	0.57

Item	Plants affected by vermicompost application
Germination ↑	soybean, tomato
Growth ↑	wheat, tomato, lettuce, pea, eggplant, cucumber, Maize, potato, pepper
Yield ↑	wheat, potato, tomato, lettuce, pea (root weight), eggplant, cucumber, tomato (plant weight), pepper
Nutrient content ↑	soybean, wheat, lettuce, cucumber, Maize
Mycorrhizal colonization ↑	Maize, Sorghum

The plant protection effect of vermicompost and vermicompost tea (Joshi et al., 2015; Yatoo et al., 2021).

Crop	Disease / pest
Corn	Earworm
Cabbage	Earworm, Aphids, mealy bugs, white caterpillars
Chickpea	Fusarium wilt
Pea	Powdery mildew
Mustard	Aphid
Cucumber	Beetles, hornworms, Green peach aphid, citrus mealybug, two spotted spider mites, damping off, root rot, fusarium wilt
Tomato	Green peach aphid, citrus mealybug, two spotted spider mites, hornworm, beetles, late blight disease, aphids, mealy bugs, white caterpillars, fusarium wilt

Crop	Disease / pest
Pepper	Aphids, mealy bugs, white caterpillars
Radish	Dampng off, root rot
Potato	Late blight disease
Rice	Foot rot
Onion	Sclerotium cepivorum
Zucchini	Reniform nematode

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**References:** Gamaley, AV, Nadporozhskaya, MA, Popov, AI, Chertov, OG, Kovsh, NV and Gromova, OA, 2001. Non-root nutrition with vermicompost extracts as the way of ecological optimisation. In Plant Nutrition (pp. 862-863). Springer, Dordrecht.

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