## MBioIm010 – Nina Dankevych, Ukraine

### IMMUNOMODULATORY PROPERTIES OF HONEY (literature review)

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Honey has long been considered not just a sweet treat, but a true natural medicine. Today, it is known to strengthen the immune system: it enhances the body's defenses, improves blood composition, and stimulates the activity of infection-fighting cells. However, along with its benefits, honey may also pose risks — in some people it causes allergies, and in certain cases even poisoning.

History holds many examples. The ancient Greek general Xenophon described how his army was poisoned by honey in Asia Minor in 401 BC: the soldiers lost consciousness and only recovered after several days. Later, similar cases were noted in the Caucasus, where honey from the Pontic rhododendron caused severe dizziness, nausea, and even fainting. It is no coincidence that this product was nicknamed "mad honey." Botanists discovered that if heated to a certain temperature, its toxic substances are destroyed, making it safe for consumption.

This story perfectly illustrates the words of Paracelsus: "All things are poison, and nothing is without poison; only the dose makes a thing not a poison." The same applies to honey.

In ancient texts, honey symbolized abundance and health — "a land flowing with milk and honey." Today, it is studied not only as a food product but also as a source of substances for immunology, ecology, and biotechnology. Scientists are testing its effects on cells, searching for new medical applications, and even exploring its use in creating nutrient media for cell cultivation.

**Conclusion:** Honey is a remarkable product that can be both medicine and poison. It all depends on its origin, quality, and, of course, moderation in consumption.