

СУЧАСНІ ДОСЯГНЕННЯ ФАРМАЦЕВТИЧНОЇ НАУКИ В СТВОРЕННІ ТА СТАНДАРТИЗАЦІЇ ЛІКАРСЬКИХ ЗАСОБІВ І ДІЄТИЧНИХ ДОБАВОК, ЩО МІСТЯТЬ КОМПОНЕНТИ ПРИРОДНОГО ПОХОДЖЕННЯ

*Матеріали VIII Міжнародної
науково-практичної
інтернет-конференції*



10
КВІТНЯ
2026
м. Харків

the 'Alva' cultivar exhibited the highest proportions of essential amino acids, indicating that this cultivar may represent a particularly valuable source of EAAs.

Conclusions. Using the UHPLC–ESI–MS/MS method, 15 amino acids were identified and quantified in apple peel and flesh samples, including five essential amino acids—valine, lysine, phenylalanine, threonine, and leucine. The results revealed notable differences in amino acid composition among the studied apple cultivars and between tissues. Among the analyzed cultivars, 'Alva' showed the highest proportion of essential amino acids in both peel and flesh, indicating its potential as a valuable dietary source of these nutritionally important compounds.

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SYNERGY OF THYME EXTRACT AND AMBROXOL IN THE THERAPY OF RESPIRATORY DISEASES

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Introduction. The modern approach to the treatment of inflammatory diseases of the respiratory tract is based on the epithelium and local immunity. Cough, as a complex protective reflex, requires not only suppression, but also correction. The most promising solution in this direction is the creation of combined agents, where time-tested plant substances are enhanced by high-tech synthetic molecules. Such a combination allows you to achieve a rapid clinical effect with minimal doses of ingredients [1].

Materials and methods. An analysis of world scientific publications contained in professional databases was conducted, and the mechanisms of interaction between terpenes and mucolytics at the cellular level were studied.

Results and discussion. The therapeutic activity of the medicinal plant *Thymus vulgaris* is determined by phenolic compounds - thymol and carvacrol. In addition to the direct bactericidal effect, these substances are able to irritate the nerve endings of the gastric mucosa, which reflexively stimulates the secretion of bronchial glands. This makes sputum less viscous even before direct contact with the lungs. In addition, the flavonoids of *Thymus vulgaris* provide a mild antispasmodic effect [2].

Ambroxol in combination with *Thymus vulgaris* acts as a powerful mucokinetic. Its uniqueness lies in the ability to activate prenatal and postnatal surfactant synthesis. Ambroxol not only thins mucus, but also prevents alveolar adhesion and improves the drainage function of the lungs. It has been clinically

proven that Ambroxol has an antioxidant effect, neutralizing free radicals formed in the area of inflammation [3].

The combination of these two components in the form of a syrup promotes rapid mucus thinning thanks to Ambroxol, acceleration of sputum excretion under the action of *Thymus vulgaris* terpenes. Complementing each other, these components allow you to create a medicine that is simultaneously effective for both dry and wet coughs.

It is important to note that the use of syrup as a dosage form provides an enveloping effect, which instantly reduces throat irritation, which often provokes new coughing attacks [1].

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VARIATION OF FLAVONOLS IN THE FRUITS OF *SAMBUCUS NIGRA* L. CULTIVARS

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Introduction. *Sambucus nigra* L. is a well-known medicinal plant which has an old history of use in folk medicine. This species is adapted to different soil types and is native to temperate regions of Europe and Asia. Many studies revealed that its fruits and flowers accumulate anthocyanins, flavonoids, phenolic acids and other biologically active compounds [1]. It was substantiated that the amounts of biochemical compounds depend on genotype. This became a reason to compare fruits of certified cultivars and wild genotypes in order to background the biological potential of different accessions and to offer insights for the development of practical use, and to propose genotypes for future breeding.

Materials and methods. Samples of elderberry cultivars and wild clones were collected at the full ripening stage in September and October. The fruits were lyophilised and ground into powder. The data were expressed on a dry weight (DW). The quantitative and qualitative composition of flavonols was determined using UHPLC mass spectrometry as described by González-Burgos et al. [2].

Results and discussion. Fruits of *S. nigra* accumulated eight flavonols: rutin, isoquercitrin, quercetin, kaempferol-3-*O*-rutinoside, kaempferol-3-*O*-glucoside, isorhamnetin-3-*O*-rutinoside, isorhamnetin-3-*O*-glucoside, and phloridzin. The flavonol rutin was detected in the largest amounts. Fruits of the investigated