BIOLOGICAL ACTIVITY OF "ASQOV-1" AND "ASATAQOV" FOOD SUPPLEMENTS

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This study investigates the antiradical (antioxidant) activity, phenolic compound composition, and acute toxicological properties of the food supplements "Asqov-1" and "Asataqov". The results demonstrated that both supplements possess the ability to neutralize free radicals (DPPH assay). The antiradical activity of "Asataqov" (ARF = 19.43%) was found to be slightly higher than that of "Asqov-1" (ARF = 18.35%). Analysis of phenolic compounds revealed higher levels of salicylic acid, quercetin, and apigenin in "Asataqov". Acute toxicity assessment showed that both supplements belong to Class VI (relatively non-toxic substances) according to OECD classification. These findings suggest that "Asataqov" and "Asqov-1" can be recommended as natural agents supporting nervous system function, reducing oxidative stress, and alleviating late complications of perinatal encephalopathy (PE).

Keywords: antioxidant activity, phenolic compounds, DPPH, Asataqov, Asqov-1, oxidative stress, perinatal encephalopathy, toxicological assessment.

In recent years, biologically active food supplements have been widely used to maintain human health, stabilize metabolic processes, and support nervous system function. Oxidative stress—caused by excessive accumulation of free radicals (reactive oxygen species, ROS)—is one of the main pathogenic mechanisms leading to cellular and tissue damage. This process plays a key role in the development of cardiovascular, endocrine, oncological, and neurological diseases, including perinatal encephalopathy (PE).

PE is primarily associated with brain damage caused by hypoxia or ischemia during the perinatal period. In this condition, increased production of free radicals damages lipid membranes, proteins, and DNA structures of nerve cells. Therefore, biologically active supplements rich in natural antioxidants are of great scientific interest as neuroprotective agents.

In this regard, studying the antioxidant properties, phenolic composition, and safety profile of plant-based supplements such as “Asataqov” and “Asqov-1” is an important scientific task.

The food supplements “Asqov-1” and “Asataqov” are based on natural plant extracts and are rich in phenolic and flavonoid compounds, which provide high antioxidant activity. The slightly higher activity of “Asataqov” (ARF = 19.43%) is associated with its higher content of iron, calcium, silicon, and salicylic acid. These elements play an important role in reducing oxidative stress and stimulating cellular regeneration.

In perinatal encephalopathy, free radicals generated due to hypoxia damage brain tissues and nerve cells. The antioxidant components present in “Asataqov” and “Asqov-1” help limit this process, protect neurons, and support recovery.

From the perspective of traditional medicine, these supplements can be considered as natural agents that “cleanse” and “strengthen” the body. Their phenolic and flavonoid composition enables their use as adjunct therapeutic agents in the later stages of PE.

The obtained results indicate that both supplements possess broad-spectrum biological activity due to their natural bioactive components, including phenolic compounds, flavonoids, organic acids, and trace elements. Their mechanism of action involves neutralization of free radicals, reduction of oxidative stress, inhibition of lipid peroxidation, and suppression of inflammatory mediators.

The DPPH radical scavenging test confirmed high antiradical activity: up to 18.35% for “Asqov-1” and 19.43% for “Asataqov” at a volume of 100 µL. The activity was concentration-dependent, increasing with higher doses. A significant increase in activity was observed after 5 minutes, followed by stabilization after 20–30 minutes, indicating both rapid and sustained antioxidant effects.

Comparative analysis showed that “Asataqov” has slightly higher antiradical activity than “Asqov-1”. This advantage is mainly due to its higher content of biologically active phenolic compounds, including salicylic acid (165.99 mg/100 g),

quercetin (17.47 mg/100 g), and apigenin (40.87 mg/100 g). These compounds exhibit anti-inflammatory, antioxidant, stress-reducing, neuroprotective, and calming effects.

Both supplements also contain essential minerals such as phosphorus, magnesium, calcium, iron, and silicon, which act as cofactors for antioxidant enzymes (superoxide dismutase, catalase, glutathione peroxidase). Magnesium and phosphorus in "Asqov-1" are important for energy metabolism (ATP synthesis), while iron and silicon in "Asataqov" contribute to redox processes and oxygen transport.

The antioxidant activity of both supplements was found to be dose-dependent, indicating a clear antioxidant kinetic pattern. Although the difference between the two supplements is relatively small (about 1.08%), the higher biochemical richness of "Asataqov" explains its slightly superior activity.

The presence of phenolic compounds, their synergistic effects, and the activating role of trace elements provide a theoretical basis for using these supplements in neuro-metabolic disorders such as PE. Since oxidative stress, inflammation, and impaired microcirculation are key pathogenic factors in PE, these supplements can help reduce ROS formation, protect neurons, and restore cellular metabolism.

From a scientific perspective, their traditional use as "cleansing" and "energizing" agents is explained by their antioxidant and anti-inflammatory properties. The synergistic action of phenols and flavonoids in "Asataqov" improves cerebral circulation and increases neuronal resistance under hypoxic conditions.

Toxicological analysis demonstrated a high safety profile for both "Asqov-1" and "Asataqov". Acute toxicity studies in mice showed LD_{50} values greater than 5000 mg/kg, classifying them as Class VI (relatively non-toxic substances) according to OECD standards. During a 14-day observation period, no mortality was observed, body weight increased steadily, and feeding behavior and activity remained normal. These results confirm the absence of toxic, allergic, or adverse pathophysiological effects.

Conclusion

The results of this study demonstrate that "Asqov-1" and "Asataqov" are natural antioxidant-rich supplements with significant biological activity. Their ability to neutralize free radicals, reduce oxidative stress, and support neuronal protection makes them promising adjunctive agents in the management of perinatal encephalopathy and other neurological disorders.

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