

NEW

ONCOLOGICAL PATIENT SUPPORT

INNOVATIVE FOOD SUPPLEMENTS

Clinical studies
Unique composition
Synergy of ingredients



**ONCOLOGICAL
PATIENT SUPPORT**



Natural support for cancer patients
— easing side effects of radiotherapy
and aiding post-operative recovery



ARONPHARMA

Science is our attitude

The Vital Link in Oncological Care: The Power of Natural Extracts

Cancer remains one of the leading causes of mortality worldwide, with millions of new cases diagnosed annually.

There is a growing need to explore natural support and innovative solutions for oncology patients. As conventional treatments like chemotherapy and radiation therapy can lead to significant side effects and compromised quality of life, integrating natural approaches may offer complementary benefits.

Our innovative products and solutions contain the **AP119** extract blend, which was selected and developed during a 4-year-long R&D project, OncoAron: **"Innovative polyphenolic preparations obtained from berries used in the prevention and minimization of chemotherapy and radioteraphy-induced side effects"**.

AP119 is a polyphenol- and anthocyanin-rich composition made from natural, standardized extracts derived from fruits such as aronia, black elderberry, black currant and evening primrose seeds.

SCIENTIFIC EVIDENCE OF AP119'S EFFICACY

Clinical trials were conducted to demonstrate the effectiveness of **AP119** in reducing the side effects associated with radiotherapy and tumor resection surgery in oncological patients. These trials were prompted by *in vitro* and *in vivo* studies providing the antioxidant, anti-inflammatory, and cytoprotective properties of **AP119**.

In vitro studies

ANTIOXIDANT PROPERTIES

AP119 effectively reduces reactive oxygen species generation (ROS) in healthy cells under oxidative stress conditions. This beneficial effect was prominently observed in Human Peripheral Blood Mononuclear Cells and Human Embryonic Kidney Cells.

ANTI-INFLAMMATORY PROPERTIES

AP119 has the capability to reduce the levels of pro-inflammatory cytokines in stimulated Human Peripheral Blood Mononuclear Cells. Such anti-inflammatory activity holds significance in ameliorating inflammation-associated damage and preserving cellular homeostasis.

In vivo studies

ANTIOXIDANT AND ANTI-INFLAMMATORY PROPERTIES

In vivo studies in mouse models exposed to ionizing radiation have shown that **AP119** supplementation leads to decreased oxidative stress and inflammation in various organs, such as the liver, kidney, spleen, bone marrow, and lymph nodes. Additionally, it exhibits cytoprotective properties by downregulating proapoptotic markers in normal cells without influencing tumor growth.



ONCOSPRAY - CLINICAL STUDY

„A polyphenol-rich compound as a support for cancer patients in minimizing side effects after radiation therapy.“ KB/421/2023

Women and men, 18-75 years old
with head and neck cancer

Group (n=10) receiving investigational product
(AP119 in a spray bottle)

1 month of daily supplementation



Patient assessment

- Quality of Life and Side Effect of Radiotherapy Questionnaire
- Evaluation of the intensity of the radiation reaction with Dische scale

According to the **American Academy of Otolaryngology - Head and Neck Surgery**, the **M.D. Anderson Dysphagia Inventory (MDADI)** is a self-administered questionnaire specifically designed to assess the impact of **dysphagia** on the **quality of life** of patients with head and neck cancer. **MDADI consists of 20 questions related to 4 domains of life: global, emotional, functional, and physical subscales.**

RESULTS

Results obtained from the MDADI questionnaire

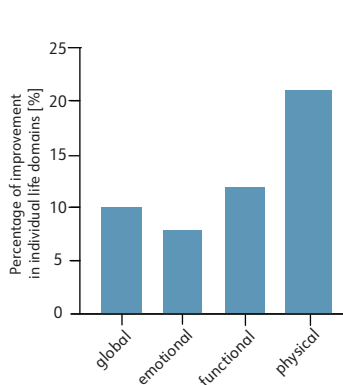


Figure 1. Improvement in life domains based on the MDADI questionnaire. Scores normalized to 100% using the formula $n \times p$, where n is the number of questions in the domain, and p is the number of patients.

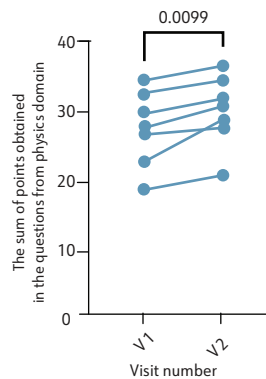


Figure 2. Analysis of changes in patient responses to selected life domains, before (V1) and end of study (V2) in control (Group 1) and investigated group (Group 2). Statistical analysis: paired t-test, $\alpha = 0.05$.

Results obtained from the patients' diaries

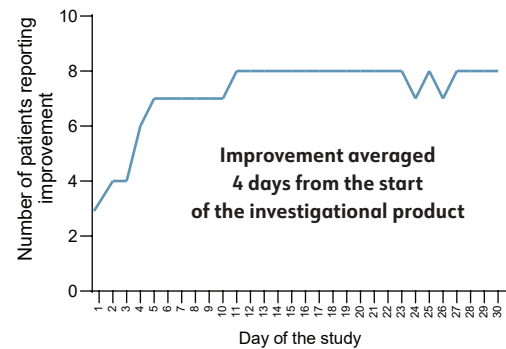


Figure 3. Number of patients reporting mucous membrane improvement after radiotherapy, based on 30-day patient diary data.

Table 1. Remarks from patient diaries regarding the subjective assessment of the condition of the oral mucosa.

Patient number	Day of comment	Comment
2	30	„It's great.“
5	11-17	„Improvement during the day and upon waking up.“
8	3-5,7-12,16,19-21, 23, 25, 27-30	„The effect lasts up to 2 hours after application.“
9	1-30	„More saliva, better comfort, refreshing effect, cooler dryness, easier swallowing, better healing of abrasions and cuts from dentures.“
10	3-30	„More saliva, good moisture, no dryness.“
11	1-30	„Mild taste, feeling of relief, less sensitive mucous membrane 'feels like it's stronger', comfort of swallowing, better healing of abrasions from dentures, normal moisture in the oral cavity.“ Moreover on 30th day: „Dryness and swallowing have returned to normal!!!“
12	5-30	„Reduced dryness in the oral cavity, noticeable moisture in the oral cavity, worse in the morning, better during day, don't need to drink.“ Moreover on 30th day: „Very good medication, I don't have to constantly drink, I haven't noticed any side effects.“
14	1-3	„Feeling of a wound when swallowing, thick secretion in the throat, difficulty swallowing.“
	6-30	„The pain has subsided - easy swallowing.“

The most important findings

- Improved Dysphagia Outcomes:** 8 out of 10 patients felt improvement in at least 1 aspect related to dysphagia, irrespective of the life domain addressed by the question in the questionnaire.
- Significant improvement noted:** It was noted that 21% of the responses related to questions in the physical domain indicated improvement. Moreover, 8 out of 10 patients notice an improvement in the same domain, at least in 1 aspect related to it.
- Swallowing relief:** Analysis of changes in responses provided by patients for individual questions in the MDADI questionnaire showed improvement with statistical significance ($p < 0.05$, comparison of visit V1 to V2).
- Fast improvement:** Based on the MDADI questionnaire, the most positive results were obtained for aspects number 7 („Swallowing takes great effort“) and 16 („I limit my food intake because of my swallowing difficulty“), which are related to the physical domain.

ONCONUTRI - CLINICAL STUDY

"Polyphenol-rich supplement as support for oncology patients undergoing surgical resection of the gastrointestinal tumor." KB/422/2023

Women and men, 18-80 years old with resectable gastrointestinal cancers, before chemo- and radiotherapy

Standard care (Nutridrink) (n=15)

3 weeks of daily supplementation

V1

V2

resection

Standard of care (Nutridrink) + AP119 (n=15)

3 weeks of daily supplementation

V3

V4

Laboratory analyses

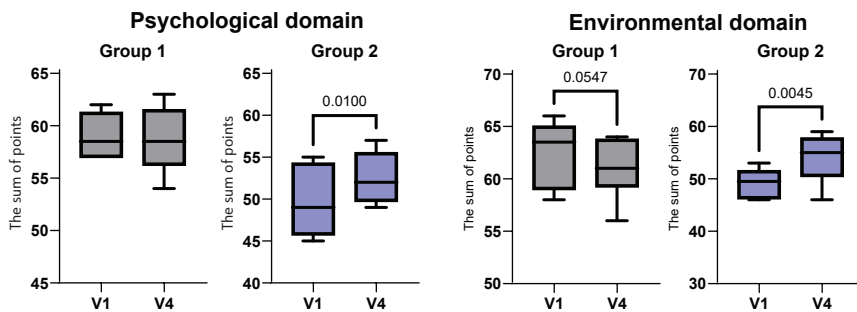
IL-6, IL-8, IL-1 β , TNF- α , SOD, Cat, and ROS

Patient assessment

Quality of Life Questionnaire

RESULTS

Representative results obtained from the WHOQOL-BREF questionnaire



The WHOQOL-BREF questionnaire, developed by the WHOQOL Group, consists of 26 questions assessing physical health, psychological well-being, social relationships, and environmental conditions, plus two questions on overall quality of life and general health.

Statistically significant improvement was observed in the psychological and environmental domains within the investigated group (Group 2) ($p < 0.05$ when comparing visits V1 and V4).

Figure 4. Analysis of changes in patient responses to selected life domains, before (V1) and end of study (V4) in control (Group 1) and investigated group (Group 2). Statistical analysis: paired t-test, $\alpha = 0.05$.

Selected results obtained from the laboratory analysis

Antioxidant activity

Analysis of ROS level showed:

- a statistically significant reduction in ROS levels at visit 2 (V2) in Group 2 compared to Group 1.
- at 48 hours post-surgery (V3), ROS levels remained lower in Group 2 compared to Group 1, resulting in a reduced fold change in ROS levels (V3/V2).

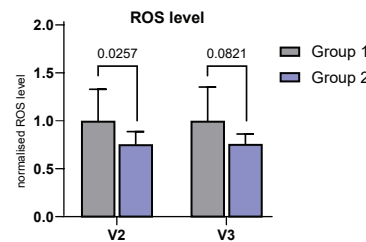


Figure 5. Comparison of pre-operative (V2) and post-operative (V3) ROS levels in control (Group 1) and investigated group (Group 2) by flow cytometry. Statistical analysis: unpaired Mann-Whitney U test, $\alpha = 0.05$. Data: means \pm SD.

Anti-inflammatory effect

The obtained data demonstrated that patients who supplemented the investigated product AP119 (Group 2) had lower levels of pro-inflammatory cytokines compared to the control group (Group 1).

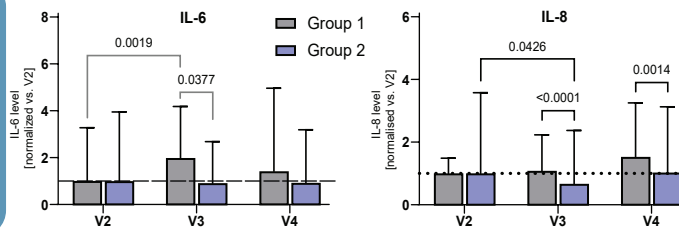


Figure 6. IL-6 and IL-8 levels in serum of oncological patients (Groups 1 and 2) undergoing gastrointestinal tumor resection, measured by ELISA. Levels at 48 hours (V3) and 3 weeks (V4) post-surgery normalized to preoperative visit (V2). Statistical analysis: unpaired Mann-Whitney U test, $\alpha = 0.05$. Data: means \pm SD

The most important findings

- 1 **Quality of life improvement:** Patients supplemented with **AP119** reported noticeable improvement in quality of life in the psychological and environmental domain.
- 2 **Anti-inflammatory and Anti-oxidant effects:** By reducing inflammation and oxidative stress, **AP119** may help managing pain and swelling after surgery.
- 3 **Immune system support:** The high antioxidant content of **AP119** supports the immune system, which is often compromised after surgery.

ONCOLOGICAL PATIENT SUPPORT

INNOVATIVE FOOD SUPPLEMENTS



ONCOspray

50 ml
30 portions

Designed to minimize the side effects of radiation therapy.

Dedicated to patients undergoing radiation therapy who experience side effects such as discomfort, inflammation, pain or changes in the mucous membrane of the oral cavity.



Active ingredient: Daily portion 1,6 ml (*NRV)

AP119 [elderberry fruit extract (*Sambucus nigra*), aronia fruit extract (*Aronia melanocarpa*), blackcurrant fruit extract (*Ribes nigrum*), primrose seed extract (*Oenothera biennis*)] 40 mg

Iceland moss dry extract 9,6 mg

Hialuronic acid 0,64 mg

Vitamin B₃ (niacin) 2,4 mg (15%)

*NRV - Nutrient Reference Values

ONCONutri

15 / 30 sachets with powder
400 mg per sachet

Dedicated to patients preparing for tumor resection surgery. It is aimed to support the body with anti-inflammatory, antioxidant, and cytoprotective effects during the perioperative period.

Active ingredient: 1 sachet

AP119 [elderberry fruit extract (*Sambucus nigra*), aronia fruit extract (*Aronia melanocarpa*), blackcurrant fruit extract (*Ribes nigrum*), primrose seed extract (*Oenothera biennis*)] 400 mg



ARONPHARMA

Innovative Branded Products

As a biotechnology company specializing in functional nutraceuticals and food supplements, our team excels in researching and developing biologically active, unique formulations.

We are committed to offering the highest quality, scientifically-backed products.



Our holistic approach to product development integrates extensive R&D with production capabilities and fruitful partnerships with universities. It allows us to maintain full control and ensure the highest standards in creating innovative supplements with clinically proven effectiveness, using original formulations and high-quality plant extracts to support your health and well-being.

We pride ourselves on being a research and development leader, particularly in the field of:

- Polyphenol-rich plant extracts
- Liposomal preparations
- Adaptogens
- Probiotics and prebiotics

OUR BRANDS

Berroxin[®]
Immune System

RETICO[®]
Eye Health

ONCO **NEW**
Oncological Patient Support

Lipo4U[™]
Liposomal vitamins & Minerals

FORMINOL[®]
Diabetes Treatment

IBS **NEW**
IBS Support

B-PAC[®] **PAC-ON[®]**
Sport Nutrition Mental well-being

MELARGINOL[®]
Heart & Circulatory System

yanesse **NEW**
Women's Beauty & Health

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