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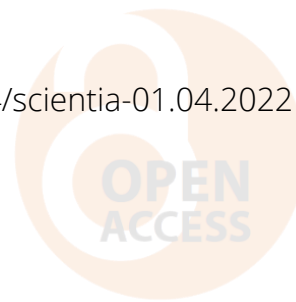
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SECTION 24. PHARMACY AND PHARMACOTHERAPY

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MEDICAL AND HEALTH USES FOR PHENOLIC COMPOUNDS

Phenols form a large and structurally diverse group of compounds. Phenolic compounds are own defined as compounds that possess an aromatic ring with at least one hydroxyl group, and their structure can vary from simple molecule to complex polymer with high molecular weight. These compounds are widely used both in industry and as consumer products (components of dyes, polymers, pharmaceuticals and other organic substances, textiles, leather, paper, oil). They are interesting from a toxicological point of view. The toxicity of phenols involves a number of different mechanisms of toxic action, respiratory uncouplers and electrophilicity [1-3].

Despite its toxicity in its pure form, phenol has been shown to have numerous health benefits. Pure phenol is used in certain medical procedures and as an ingredient in numerous treatments and laboratory applications: phenol injection to treat a condition known as muscle spasticity; vaccine preservative that helps keep bacteria from growing in and contaminating the vaccine solutions; some sore throat sprays. Phenolic compounds are well-known as antioxidant and many other important bioactive agents that have long been interested due to their benefits for human health, curing and preventing many diseases. They are naturally occurring compounds present in many foods, including fruits, vegetables, cereals [4-6]. These compounds, based on their chemical structures, are divided into various classes. The major classes among them are phenolic acids, flavonoids, lignans and stilbenes [7].

The effects of phenolics on human health promoting, diseases curing and preventing are [5-8]:

- antioxidant effect (polyphenols can stop the reaction of free radicals with other molecules in your body, preventing damage to your DNA as well as long-term health effects);
- antibacterial effect (there are a large number of flavonoids and phenolics which exhibit antibacterial effect; flavonoids and other phenolics have also been reported as antibacterial agent against *P. acnes* which are the major cause of skin acne problems);
- anti-cancer effect (various in vitro and in vivo studies of polyphenols were performed using human cancer cell lines and these studies concluded that polyphenols are protective and responsible for lowering tumor growth; this type of beneficial effect was observed for various cancer sites, including the mammary glands, skin, lung and liver, and some sites of the digestive tract like the intestine, stomach and mouth);
- cardioprotective effects (numerous studies validated that the intake of polyphenols

minimizes the risk of coronary heart diseases; various epidemiological investigations concluded that the risk of cardiovascular diseases like myocardial infarction is reduced due to the consumption of food enriched with polyphenols);

– immune system promoting and anti-inflammatory effects (a large number of flavonoids and other phenolics have been proved their noteworthy effects on immune system function and inflammatory processes; phenolic compounds have demonstrated anti-inflammatory properties to treat skin diseases, rheumatoid arthritis, and inflammatory bowel disease);

– skin protective effect from UV radiation (several phenolic compounds are potential antioxidant molecules for treatment of various skin disorders including diseases which caused by UV radiation);

– antidiabetic effect (scientific studies have revealed that polyphenols play an important role as an antidiabetic agent.)

Conclusion. The use of phenolic compounds are the promising candidate for future medical and pharmaceutical product development to promote human health, prevent and cure various diseases.

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