

Fungal Contaminations of Herbal Face Mask Preparations

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Herbal alternative medicine (Herbamed) has global distribution and extending moreover 2000 years, particularly among Asian and Northern European population (1-3). For examples, Iranian scientists, Avicenna (980-1037) and Razi (846-930) published several traditional medicine (phytotherapy) books and still in use in famous universities in the World (3). Moreover, nearly 25% of all modern medicines are derived from medicinal plants (4). Herbal drugs are usually self-prescribed preparations or prescribed in grocery stores for the treatment and prevention of various diseases (5). Compatibility with human body and less adverse effects are two important futures of herbal drugs. Therefore, traditional medicine using herbal drugs are now widely accepted and developed as alternative medicine in most countries. On the other hand, microbial contaminations, toxins and heavy metals are an important problem for herbal remedies (5-7).

Herbal drugs are a crude preparation of several parts of medicinal plants such as, fruits, bark, leaves, root, rhizome, stem, flowers, seeds and essential oils. They are natural products and may be contaminated by many microorganisms (biological contamination) through harvesting, handling and storage (5). Several studies showed that medicinal plants were contaminated with bacterial species (5, 8). In addition, fungal contaminates as well as mycotoxins have been reported in previous researches of herbal drugs and their preparations (2, 9). The lengthened storage in warmth and humidity conditions could lead to fungal grow on large scales and bring a risk of mycotoxin production into medicinal herbs (10).

In the present study, several face mask preparations were purchased at random from several local groceries in Ahvaz, Iran. Then, 10 grams of each herbal face mask preparations was dissolved in 90 mL of sterile distilled water into sterilized flasks. Flasks were put for 30 minutes at room temperature and then shaken for five minutes. Afterwards, 10 μ L of each supernatant was inoculated on Sabouraud's dextrose agar (Merck, Germany) plates, spread

as lawn and incubated at ambient temperature for one week. In the present study, only 75% of samples (powder masks) yielded several fungi; whereas, only 25% of samples (solution preparations) had negative results for fungal elements. All grown fungi were identified by culture morphology and microscopy features. The most common isolated agent was *Aspergillus flavus* followed by *A. niger*, *Penicillium* species, *Mucor* species and *Fusarium* species.

In the present study, all powdered herbal face mask were contaminated with several saprophytic fungi. The presence of many fungi in herbal preparations may be harmful for those who used for medical care, especially those preparation applied on face skin. Gautam and Bhauduria showed that 88% of fruits and powdered samples of herbal drugs were contaminated to several species of saprophytic fungi belonging to *Aspergillus* and *Penicillium* (11). In addition, Razak illustrated *A. niger* as the most dominant fungal contaminant in herbal plants (12). On the other hand, *Fusarium* was observed as the most dominant genus in tested medicinal drugs by Stevic et al. (9). Most isolates of *Aspergillus* species such as *A. flavus*, *A. parasiticus*, *A. ochraceus*, *A. niger* and *A. fumigatus* have potentially mycotoxic (4, 7). Mycotoxins produced by these fungi, especially aflatoxins, are carcinogenic and cause several diseases of skin, liver, kidney, respiratory organs and nervous system (11).

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