

Research Article



Acute and Sub-acute Toxicity Study of *Kushta Hajrul yahood* (Calx of *Lapis judaicus*): A Unique Herbomineral Unani Formulation

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ABSTRACT

Present study was carried out to evaluate the acute and sub-acute toxicity of *Kushta Hajrul yahood* in Wistar rats. study was conducted as per the OECD guidelines. The formulation was administered orally in a single dose (300, 2000 and 5000mg/kg b.w.) in female Wistar rats in acute toxicity study. In sub-acute toxicity, drug was given at doses of 1000, 500 and 333.33 mg/kg b.w. for 28 days. During study animals were observed for any toxic signs such as changes in the animal behaviour, body weight, and food and water intake. After completion of study haematological and biochemical parameters as well as histopathological analysis of kidney, liver, spleen and stomach were performed. In acute toxicity no mortality was observed up to 5000 mg/kg, hence test formulation was classified as safe (Category 5) as per OECD guideline 423. Repeated dose administration in three different doses does not show any statistically significant changes in haematological and biochemical parameters. Histopathology of the organs did not show any significant changes in cellular architecture. From above results it is concluded that *Kushta Hajrul yahood* is safe but long-term toxicity study is needed to confirm its safety.

Keywords: Calx; Herbomineral; *Kushta Hajrul yahood*; Safety Profile; Unani formulation.

INTRODUCTION

The use of inorganic materials in medicine subsists since ancient times and continues to use globally in many tribal and folk medicines.¹ Classical Unani literature has mentioned substances of vegetable, animal and mineral origin. Metals and minerals used include mercury, gold, silver, iron, tin, zinc, Jew's stone, alloys, and gems, etc. chemical and physical processing of these substances and their compounds have been elaborated in texts which are generally known as Calcinology.²⁻⁵ Calcinology deals with the mineral origin drugs, their varieties, characteristics, processing techniques, properties, possibilities of adverse effects and their management etc. in a comprehensive way.⁶ *Kushta* (Calx) is a Persian word '*kushtan*' which means 'to kill'.^{7,8} Its preparation is time consuming and complex process which involves the purification of mineral or metal compounds and grinding together with a number of herbs, juices required for the making of *Kushta*.⁹ The toxic effect of the mineral or metallic constituents is believed to be removed by repeated heat and cold cycles in herbal decoctions.¹⁰ Thousands of formulations and remedies are used in Unani and other traditional systems of medicine which have helped humans since ancient times. These remedies are natural and researchers are showing interest in them to discover new compounds of medicinal importance.¹¹

Herbal medicines and formulations which are used in the treatment of certain diseases may pose a toxic hazard and there is a need to evaluate for their safety, efficacy and therapeutic significances¹² as well, there is an emerging

increase in the intake of plant based formulation as an alternative or adjuvant drug for the strong faith that these products are safe and devoid of side effects. Meanwhile, their acceptability, effectiveness, affordability, safety and low cost give more attention to use them as alternative medicine.¹³ According to WHO, in spite of the wide use of medicinal plants, their efficacy and toxicity have rarely been tested, and it is therefore necessary to evaluate and standardize various herbal formulations used in the management of a numerous diseases.¹⁴

Kushta is the finest powder form of the medicinal preparations obtained by calcination of metal, minerals and rarely animal origin drugs. These herbo-mineral or herbo-metallic preparations are used since centuries and are claimed to be very effective and potent dosage form. *Kushta* is easily absorbed in human body and highly efficacious and potent inaction in comparison to other dosage form of the same drug.^{15,4,8,16} Some of the commonly used *Kushta*'s in Unani system of medicine are *Kushta Hajrul yahood* (calx of *Lapis judaicus*), *Kushta Tutia* (calx of Copper sulphate), *Kushta Khabasul hadeed* (calx of iron oxide), *Kushta Sadaf* (calx of Oyster shell), *Kushta Sammul far* (calx of Arsenic oxide), *Kushta Jast* (calx of Zinc oxide), *Kushta Qalai* (calx of Tin) etc. for the management of various ailments of the body. Efficacy of these preparations in curing various diseases *viz.*, skin diseases, diabetic ulcers, warts, and vitiligo are well established.^{17,8,4,8} In reviewing classical literature of Unani medicine, we found that almost all Unani physicians recommended *Lapis judaicus* for urolithiasis as a single drug or in combination with other drugs in various dosage

