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TABLETS 'K-TONE' IN CHRONIC KIDNEY DISEASE

SMITA NARAM[1], DEEPAK MAHAJAN[2*] AND HEMANG PAREKH[3]

1: Department of Research and Development, Ayushakti Ayurveda Pvt Ltd, Bhadrannagar cross road, Malad, Mumbai-64

2: Research Head, Ayushakti Ayurveda Pvt Ltd, Bhadrannagar cross road, Malad, Mumbai-64

3: Medical head, Ayushakti Ayurveda Hospital, Bhadrannagar cross road, Malad, Mumbai-64

***Corresponding Author: E Mail: Dr. Deepak Mahajan: drdeepakm@ayushakti.com**

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ABSTRACT

Nephrotoxicity is defining as rapid deterioration in the kidney function due to toxic effect of medications and chemicals. There are various forms, and some drugs may affect renal function in more than one way. Nephrotoxins are substances displaying nephrotoxicity. Different mechanisms lead to nephrotoxicity, including renal tubular toxicity, inflammation, glomerular damage, crystal nephropathy, and thrombotic microangiopathy. The traditional markers of nephrotoxicity and renal dysfunction are blood urea and serum creatinine which are regarded as low sensitive in the detection of early renal damage. Thus, the detection of the initial renal injures required new biomarkers which are more sensitive and highly specific that gives an insight into the site of underlying renal damage. Kidney injury molecule-1, Cystatin C, and neutrophil gelatinase-associated lipocalin sera levels are more sensitive than blood urea and serum creatinine in the detection of acute kidney injury during nephrotoxicity. In this article we wantto validate the role of K Tone in nephrotoxicity. This protective effect of k-tone can be attributed to the diuretic, anti-inflammatory, anti-oxidative, and as relief from kidney stones, blockages. It also protects from infections in kidneys.

Keywords: Kidney stones, urinary calculi, urolithiasis, urinary tract stones, and nephrolithiasis

1. **Background :**

Kidneys play an important part in the maintenance of our endocrine and acid-base balance, blood pressure, erythropoiesis etc. Nephrotoxicity is one of the most common kidney problems and occurs when body is exposed to a drug or toxin [1-2]. Many medicinal plants exhibited nephroprotective effect of renal tissues against kidney injuries induced by gentamicin, paracetamol, profenofos, D galactosamine (D-GalN), chronic-stress, sepsis and cytotoxic drugs induced kidney injury as well as streptozotocin induced diabetic nephropathy.

Nephrotoxicity:

Nephrotoxicity is toxicity in the kidneys. It is a poisonous effect of some substances, both toxic chemicals and medications, on kidney function. There are various forms, and some drugs may affect kidney function in more than one way. Nephrotoxins are substances displaying nephrotoxicity. Nephrotoxicity defined as a renal disease or dysfunction, is often caused by drugs, chemicals, industrial, or environmental toxic agents. Nephrotoxicity is one of the most common kidney problems and occurs when your body is exposed to a drug or toxin that causes damage to your kidneys. When kidney damage occurs, you are unable to rid your body of excess urine, and wastes. Nephrotoxicity should not be confused with some medications predominantly excreted by the kidneys needing their dose adjusted for the decreased kidney function (e.g., heparin, lithium).

Nephrotoxicity is usually monitored through a simple blood test. A decreased creatinine clearance indicates poor kidney function. Normal creatinine level is between 80 - 120 μmol/L. In interventional radiology, a patient's creatinine clearance levels are all checked prior to a procedure. Serum creatinine is another measure of kidney function, which may be more useful clinically when dealing with patients with early kidney disease.

Aminoglycoside causes nephrotoxicity, which particularly affects the proximal tubule epithelial cells due to selective endocytosis and accumulation of aminoglycosides via the multi-ligand receptor megalin. A consensus set of phenotypic criteria for induced nephrotoxicity have recently been published. Novel renal biomarkers, in particular kidney injury molecule-1, identify proximal tubular injury earlier than traditional markers and have shown promise in observational studies. Further studies need to demonstrate a clear association with clinically relevant outcomes to inform translation into clinical practice.

In this article, we want to validate the Validate the Role of K Tone in Nephrotoxicity manufactured by Ayushakti Ayurveda Pvt Ltd with the reference of some previous work done.

2. **Name of Herbal Combination**

K-TONE TABLET

3. **Manufacturer** :

Ayushakti Ayurveda Pvt Ltd pharmacy,lot number 78, Stice, Musalgaon, Sinnar, Nashik- 422112

4. **Herbal formulation**

S. NO.	SANSKRIT NAME	LATIN NAME	QTY. IN mg
1	ShuddhaGuggul	Balsamonderonmukul	150.00
2	VayavarnaGhan	CrataevaNurvala	150.00
3	Kulathi	DolichusBiflorous	110.00
4	GokshurGhan	Tribulusterrestris	100.00
5	PunarnavaGhan	BoerhaaviaDiffusa	100.00
6	YastimadhuGhan	GlycerrizaGlabra	80.00
7	Gokshur	TribulusTerrestris	50.00
8	Punarnava	BoerhaaviaDiffusa	50.00
9	Marich	Piper nigrum	15.00
10	Yavakshar	HordeumVulgare	15.00
11	TrapushGhan	Cucumissativus	15.00
12	MustakGhan	Cyprus rotundus	10
13		Film coating : Hydroxypropyl Methylcellulose	10
14	YashadBhasma	Zincum	5.00
	Total		845.00

Balsamonderonmukul

Commiphora wightii, with common names Indian bdellium-tree, gugal, guggul, gugul, or mukul myrrh tree, is a flowering plant in the family Burseraceae, which produces a fragrant resin called gugal, guggul or gugul, that is used in incense and vedic medicine.

Guggulsterone has been found to potently inhibit the activation of nuclear factor-kappa B (NF-kappaB), a critical regulator of inflammatory responses. Such repression of NF-kappa B activation by guggulsterone has been proposed as a mechanism of the anti-inflammatory effect of guggulsterone. Chronic kidney disease (CKD) is a progressive disease where occurs due to enhanced inflammation and oxidative stress leading to reduced kidney function. Studies have indicated *B. serrata* in combination with Curcuma longa as an effective regimen to obtain reduced inflammation in patients with CKD which functioned via modulation of prostaglandin E2 (PGE2) (Shelmadine *et al*., 2017). Moreover, this regimen was found to be safe, well tolerated which also enhanced the levels of inflammatory cytokines in CKD patients **[3]**.

Varuna (Crataevanurvula):

Crataevanurvala Buch. Ham. (Capparaceae) is a high-value medicinal tree that grows almost all over India, especially in the semiarid regions. Medicinal usage has been reported in

traditional systems of medicine, such as Ayurveda and Unani, wherein the plant is frequently preferred in the treatment of urinary disorders that reoccur owing to development of antibiotic resistance by the infecting organism. C. nurvala has also been used in the treatment of prostate enlargement and bladder sensitivity. The plant is known to relieve, prevent, and promote the discharge of kidney stones. Lupeol, a pentacyclictriterpene isolated from the root bark, has been shown to significantly minimize the deposition of stone-forming constituents in kidneys.Investigations have also indicated the plant has anti-arthritic, hepatoprotective, and cardio-protective actions. These multiple uses of *C. nurvala* along with erratic seed germination, destructive harvesting, and habitat loss from deforestation have endangered survival of the plant **[4]**.

Kulathi:

Dolichosbi florussensu act non L. (Fabaceae) is widely used for the treatment of kidney stones, urinary disorders. Kulthi is beneficial for eliminating kidney stones from the body. It has diuretic properties which help increase urine flow, thereby creating pressure on the deposited stone. This helps to flush out the deposits in the form of small stones.

***Tribulus terrestris*:**.

T. terristris is useful in the treatment of urolithiasis, dysurea, impotence or erectile dysfunction and kidney dysfunction, and has also shown antibacterial & antifungal activity and antiinflammatory activity.[5]The reduction in urinary uric acid level could be due to the consequence of the decrease in serum uric acid level. The increase in urinary uric acid level is a cause for urinary stone formation1 and therefore the *T. terrestris* extract has a positive effect on the reduction of urinary stone formation. While reducing the uric acid level in urine, the extract also increased the urine volume. This diuretic effect of the extract would help in the dilution of uric acid and thereby reducing urate stone formation. Stone formers must maintain a high urine volume to keep solutes well diluted **[6, 7]**.

***Boerhaavia Diffusa*:**

Punarnava is nephroprotective; it improves kidney function by reducing the urea and creatinine levels in the blood. In addition to this, due to its lithotriptic action, it further helps to reduce kidney stone problems.is used traditionally in ethnomedicinal practices for the treatment of kidney stone and urinary insufficiency. Pharmacological studies have demonstrated that root of *Boerhaavia diffusa* possess punarnavocide which exhibits wide range of properties-diuretic (Gaitonde *et al*., 1974), antiinflammatory, antifibrinolytic (Jain and

Khanna, 1989), antibacterial (Olukoya *et al*., 1993) and antihypertensive activity (Gaitonde *et al*., 1974). Due to the combination of these activities, *B.diffusa* is regarded therapeutically as highly efficacious for the treatment of inflammatory renal disease and nephrotic syndrome in human beings. Therefore the study was designed to study the efficacy of Punarnava (*Boerhaavia diffusa*) in management of chronic kidney disease **[8]**.

Glycerriza Glabra*:*

Glycyrrhiza glabra (common name: licorice) is a herb commonly found in Western Asia and Southern Europe. The plant is effective in treating kidney disorder, urinary and kidney stone, renal dysfunction, chronc renal failure. Large amounts of liquorice can decrease potassium levels in the body. Water pills (Diuretic drugs) can also decrease potassium in the body. Taking licorice along with Water pills (Diuretic drugs) might decrease potassium in the body too much.GA inhibited the production of nitric oxide and prostaglandin E2 and expression levels of induced nitric oxide synthase and cyclooxygenase-2 in kidney tissues. GA also suppressed the apoptosis in kidney tissue induced by AKI and inhibited the activation of NF-κB signalling pathway **[9]**.

MARICH: Black pepper grows in India and other tropical Asian countries. Black pepper is one of the most commonly used spices in the world. Black pepper and white pepper both come from the same plant species. Maricha is an herb which can aggravate pitta Black Pepper is exceedingly a very popular and important ingredient that is used in cooking worldwide. It is usually used in flavoring food but beside this the herb provides medicinal benefits then it is called black peppercorn it improves kidney function by reducing the urea and creatinine levels in the blood. In addition to this, due to its lithotriptic action, it further helps to reduce kidney stone problems.

HORDEUM VULGARE

Barley (*Hordeum vulgare* L.) is the world's fourth most important cereal crop after wheat, rice and maize **[10]**. It is readily available with reasonable cost and has the highest amount of dietary fiber among the cereals which may be beneficial for the metabolic syndrome. Barley has been found to be a kidney-friendly and diabetes-friendly food. It can help control diabetes and kidney damages so as to help reduce high Creatinine levels to a certain degree **[11]**.

CUCUMIS SATIVUS:

Cucumber is a widely-cultivated creeping vine plant in the Cucurbitaceae gourd family that bears usually cylindrical fruits, which are used as vegetables. The

nephroprotective activity of different herbs was established due to combination of diuretic, antiinflammatory and antioxidant effects which are found to be due to compounds such as triterpenoids, flavonoids, phenols, alkaloids, saponins which are present in abundance within ethanolic extract of Cucumismelo seeds **[12-16]**. Ethanolic extract of Cucumismelo seeds can be used as better alternative to certain allopathic drugs such as allopurinol, for chronic kidney disease to combat with nephrotoxic effects produced by recurrent episodes of kidney stones with raised levels of uric acid.

MUSTAK GHAN:.

Cyperusrotundus (coco-grass, Java grass, nut grass, purple nut sedge or purple nutsedge, red nut sedge, Khmer kravanhchruk) is a species of sedge (Cyperaceae) native to Africa, southern and central Europe (north to France and Austria), and southern Asia. C. rotundus is a traditional herbal medicine used widely as antibacterial, antimalarial, sedative, antispasmodic, anti-inflamatory and relieve diarrhea **[17, 18]**. It works as antioxidant which inhibits lipid peroxidative stress **[19]**.

RESULT:

Tablet K tone protects infections in kidneys. It is also useful in Optimal management of Chronic kidney disease including cardiovascular risk reduction, treatment of albuminuria, avoidance of potential nephrotoxins, and adjustments to drug dosing. It improves the function of kidneys and has positive effect on urinary tract. Also it prevents recurrent kidney and urinary stones. Few contents of K tone helps to prevent inflammation of kidneys and burning micturition and burning in the renal area. We conclude that K-TONE is useful in Chronic Kidney disease like Urinary & Kidney Stones, Urological disorders (dysuria, urinary retention, urolithiasis, Polyuria, Nephritis, Ascites), Renal dysfunctions, Chronic Renal failure, Acute Renal failure, Tubular necrosis, Urinary tract infections, Burning Micturition.

CONCLUSION:

It may be concluded that combined treatment of Poly herbal medicine K-tone has a preventive and protective effect on Kidney disease. The review showed that this is effective alternative from allopathic medicinesin nephroprotective.

It stops the reformulation of stones or crystals and relieves associated pain. Thus ayurvedi Patients and nephrologists face challenges in understanding and preparing for the kidney disease trajectory. Communication interventions that acknowledge the role of patient emotion and address uncertainty may improve how

nephrologists discuss disease trajectory with patients and thereby enhance their understanding and preparation for the future. Chronic renal failure represents a critical period in the evolution of chronic renal disease and is associated with complications and comorbidities that begin early in the course of the disease. These conditions are initially subclinical but progress relentlessly and may eventually become symptomatic and irreversible. Early in the course of chronic renal failure, these conditions are amenable to interventions with relatively simple treatments that have the potential to prevent adverse outcomes.

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