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Review Article

Perspectives of *Neer-Nirakkuri* (colour of the urine) and diagnosis according to Saint *Therar*

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ABSTRACT

The bioactive compounds and pH of the urine are the reason for dip and spike of its surface appearance. The colour variations relate on its primary and secondary metabolites due to the presence of bacterial reaction. The urine analysis may show a light on serious medical condition lurking unnoticed by us. The time to evolve the nature of the urine with its thousands of unique chemicals drained by the kidneys is the future scenario for cost effective diagnosis. According to Siddha philosophy urine is made up of *appu bhutham* (water element) like blood, semen, fat and bone marrow. The food stuffs are *pancha bhutha* (five elements) in nature which nourish all *ezhu udarkattugal* (the seven body constituents) for the functioning of subtle principles *vali* (vaadham), *azhal* (pittham) and *iyam* (kabham). The functional change of seven body constituents due to the derangement of intrinsic and extrinsic factors like diet, work, environmental change etc. cause vitiation *mukkutram* viz. *vali*, *azhal* and *iyam* making them deranged to develop various diseases. Siddha literatures explain five different colours of urine. Every colour has further variants. Yellow colour urine has six variants, red colour urine has four variants, green colour urine has five variants, black colour urine has four variants and white colour urine has two variants. Colour of the urine and its interpretation is only the beginning to assess the severity of problem alerting an individual that something is wrong in metabolism or renal function. The colour of the urine is further correlated with food already had. The taste, sediments, smell, froth, mass are the various factors certainly considered for further evaluation. The colour of the urine and its relation with humour disorder and five elements would explore scope for future research cost effectively.

Keywords: Colour, Neerkuri, Nirakkuri, Therayar, Siddha marutthuva sudar, mukkutram, panchabhutham

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INTRODUCTION

Urine is the excreted liquid contains much more than a few metabolic waste products. Recent days scientist identified human urine consists of nearly 4000 different compounds, which are bio chemically active. The bio-synthesized urine by the body itself produces more over 1500 active compounds and the common bacteria seen in the urine produces more than 70 compounds. At the same time, one interesting fact is more than 2250 active compounds seen in the urine is linked with the food, drugs already taken on previous days and the environment. Urine is the only liquid in the body has more number of bio-chemicals than saliva, cerebrospinal fluid, blood, sweat, lymph. It is more convergence and related with microbial balance, organ and systemic function, affected diseases, acid-base balance, metabolism and gaseous substances in the body.

Normal urine and its compounds

Normal urine leaves very mild ammonia odor. The pH is varying between 4.8 and 7.5. It may occasionally contain traces of protein and glucose. Except in the diseased condition urine does not possess ketones, nitrites, red blood cells, white blood cells, bilirubin, and biliverdin. The colour of the urine is an indicator of various illnesses in the earlier stages to be very alert and protective. The normal urine colour is straw yellow from a pigmented substance known as urochrome. A strange in color accompanied by usual pH or normal odor with unusual compounds such as RBC or bilirubin may indicate the unhealthy state, helps to identify the potentially disastrous health complications earlier.

The bioactive compounds and pH of the urine are the reason for dip and spike of its surface appearance. The

colour variations relate on its primary and secondary metabolites due to the presence of bacterial reaction. The urine analysis may show a light on serious medical condition lurking unnoticed by us. The time to evolve the nature of the urine with its thousands of unique chemicals drained by the kidneys is the future scenario for cost effective diagnosis.

Indicators of urine colour

The body produces urochrome at a constant rate and maintains the urine colour straw yellow. If the consumed liquid is low, then the proportion between urine and urochrome is altered and the colour becomes dark and vice versa. The intensity of normal urine yellow colour is altered by the individual's water consumption. If the urochrome is mixed with small amount of fluid the colour is dark and concentrated urine may reflect dehydration state. On the other hand, the urochrome is mixed with large quantity of fluid; the urine is pale and diluted. Virtually translucent pee is a diluted mixture of urochrome in large amounts of fluid and is usually the product of a well-hydrated individual. The normal pee varies from orange to pale straw colour in early morning after wake up to night in the day-to-day life for a normal individual.

Siddha philosophy for urine analysis

Greek physicians as far back as 500BC performed urine examination by analyzing the urine sample of sick persons. Later the in the Middle Ages European physicians performed it routinely on their patients and made documents. Saint *Therayar*, lived in the period of Saint *Agathiar* 7000 years as far as back as BC wrote about the analysis of five characteristics of urine and urine testing methods *neerkuri* (visual urine analysis) and *neikuri* (oil-urine test analysis).

According to Siddha philosophy urine is made up of *appu bhutham* (water element) like blood, semen, fat and bone marrow. The food stuffs are *pancha bhutha* (five elements) in nature which nourish all *ezhu udarkattugal* (the seven body constituents) for the functioning of subtle principles *vali* (vaadham), *azhal* (pittham) and *iyam* (kabham). The functional change of seven body constituents due to the derangement of intrinsic and extrinsic factors like diet, work, environmental change etc. cause vitiation *mukkutram* viz. *vali*, *azhal* and *iyam* making them deranged to develop various diseases.

Siddhars discovered many solutions for the good of humanity and sacrificed their lives to the service of God through humanity. The spiritual idealism of the principle of Siddha medicine has been diluted in the recent days in the name of science. The highest truth in Siddha science could be achieved by the renderless philosophical science with various basic aspects of life as well as of medicine. The deplorable state of Siddha medicine in nowadays became stagnant and lost the ancient hidden truths. True interpretation and application of Siddha philosophy is profound and predisposed of intrinsic and extrinsic factors and being neither criticised nor ignored. The things were used in past are recently creating the great future among scientific fraternity. We can simply say that recent scientific medicine is evolved from ancient medicine with some more intellectual prospects.

"meikkuri niranthoni vizhinavirumalam kaikkuri"

Saint Therayar

Mei (Skin), *Niram* (Colour), *Thoni* (Voice), *Vizhi* (Eyes), *Naa* (Tongue), *Malam* (Stool), *Siruneer* (Urine) and *Naadi* (Pulse

in hand) are the eight main diagnostic tools explained by Saint *Therar*. The physical appearance and characteristics of urine is also an important tool in Siddha diagnosis.

Collection of Urine for examination

The test urine should be eligible for test if properly collected. If urine is controlled for long time, the resultant urine should have pus, red blood cells, protein, crystals etc. So Siddhars developed a standard procedure for the test urine. If urine is kept in the bladder for a long time it causes inflammation in the bladder, ureter, urethra, pain in joints, pricking pain and weakness of the genitalia, accumulation of gas in the pelvic area, pus and blood in the urine, disappearance of normal urine colour and burning sensation on pee.

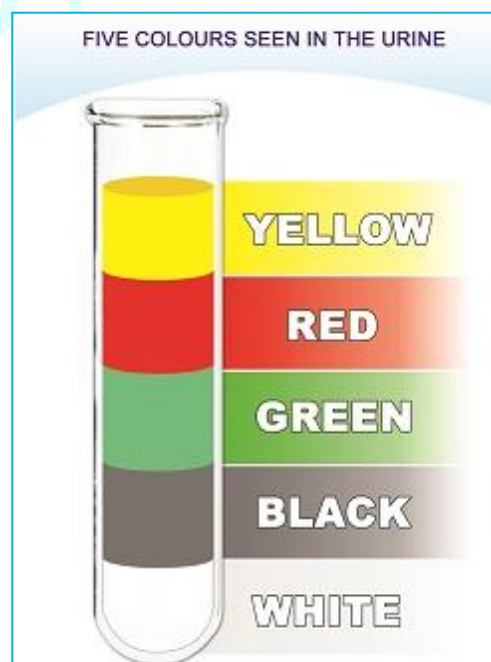
According to Saint *Therar*, the urine should be collected in the early morning from a person who adheres to the following conditions for appropriate results. The patient should take a sufficient quantity of six-taste diet according to the appetite at specified time. He should also have pleasant sleep on previous night. According to the patient conditions and emergency the urine may be collected at any time. *Therar Neerkuri* elaborates five characteristics of urine which are significant for diagnosis. Colour, weight and density, odour, froth and lesser in quantity are attributed to physical appearance and sense of uroscopy.

Overview of urine colour

The colour of the normal urine depends upon the quantity of water consumed, concentration of urochrome and its dilution in the urine. An unusual different urine color can be an indicator of disease. Pigments, colouring agents in certain foods, recent medications, injury, obstruction in the urine pathway, mechanical pressure can change the urine color.

Review on Urine colours

Siddha literatures explain five different colours of urine. Every colour has further variants. Yellow colour urine has six variants, red colour urine has four variants, green colour urine has five variants, black colour urine has four variants and white colour urine has two variants.



Picture 1: Five colours of urine

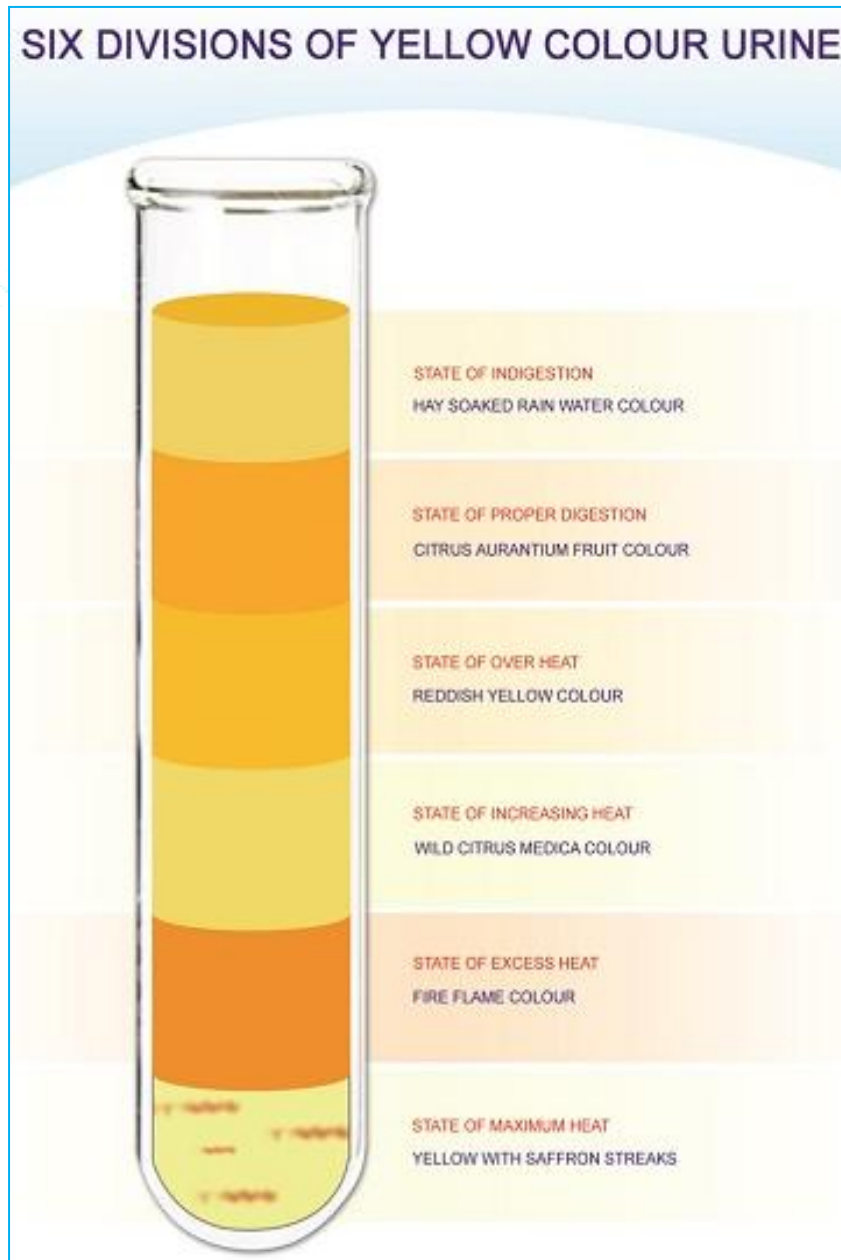
Table 1: Five colours of urine and their variants

| YELLOW | RED | GREEN | BLACK | WHITE |
|--------------------------------------|-----------------------------|-----------------------|------------------------------|--------------------|
| Hay soaked rain water colour | Reddish black colour | Dark green colour | Black saffron colour | Clear white colour |
| <i>Citrus aurantium</i> fruit colour | Red rose petal colour | Green sky colour | Reddish black saffron colour | Milk white colour |
| Reddish yellow colour | Reddishness in black colour | Turquoise blue colour | Green shade in black colour | |
| Wild <i>Citrus medica</i> | Pure red colour | Aquamarine colour | Gray colour | |
| Fire flame colour | | Leaf green colour | | |
| Yellow with saffron colour | | | | |

Yellow colour variants

According to Siddha texts six types of yellow colours are mentioned. The normal colour of healthy urine is yellow and it shows the good function *mann bhutam* (land element). The natural colour of *mann bhutham* (*Prithivi*) is

golden yellow and abundantly seen in bones, skin, muscles, hair, nerves and vessels. The excess of other element like *thee* (fire) with *mann bhutham* leads to change in yellow colour shows various digestion disorders related with *agni bhutham* (fire) in the digestive system as *manthakini* and *udarthee*.



Picture 2: Six variants of yellow colour urine

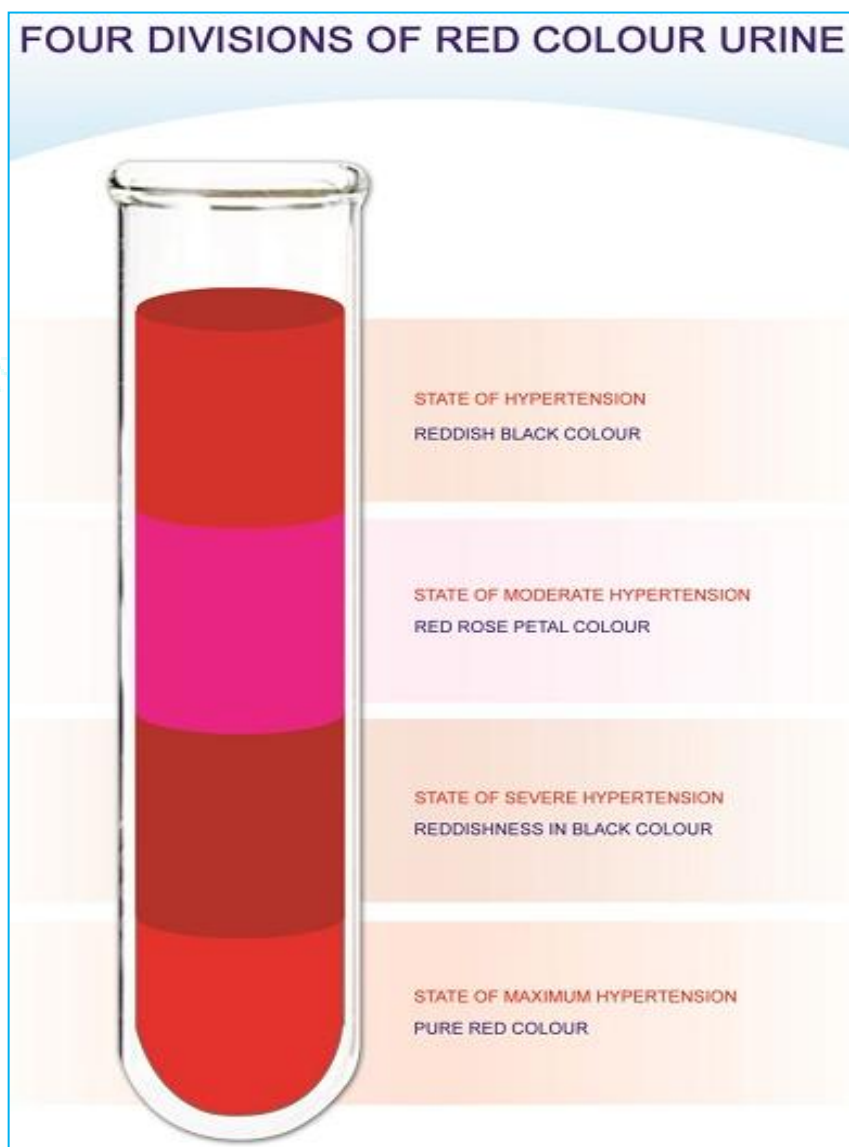
According to saint *Therayar Nirakkuri* the **hay soaked rain water colour** in the urine would be seen in indigestion *manthakini*, **Citrus aurantium fruit colour** would be seen in proper digestion due to *samanakini*, reddish **yellow colour** would be seen in over heat of the body due to *theetchakini*, wild **Citrus medica colour** would be seen in increasing heat of the body due to *theetchakini*, **fire flame colour** would be seen in excess heat of the body due to *theetchakini* and **yellow with saffron colour** would be seen in maximum heat of the body due to *vidamakini*

According to modern medical science **dark yellow** (Gamboge) colour of the urine is due to the presence of bilirubin, **orange** is due to dehydration, fever or sweating, presence of bilirubin in jaundice, excessive carrot, sweet potato, pumpkin and carotene rich compounds intake, riboflavin (vitamin B2) supplements, Vitamin C, anti-

inflammatory drug sulfasalazine (Azulfidine), phenazopyridine (Pyridium), ethoxazene, nitrofurantoin, chemotherapy drugs, senna laxative liver or gall bladder duct diseases, dehydration, **opaque orange with a pink tint** is due to crystalized uric acid (gout), acute and chronic uric acid nephropathy and uric acid nephrolithiasis and **vibrant neon tangerine** is due to painkillers and antibiotics.

Red colour variants

According to Siddha texts four types of red colours are mentioned. The colour of abnormal urine is red and it shows the excessive function of *thee bhutam* (fire element). The natural colour of *thee bhutham* (*Agni*) is red and abundantly seen in the characters of arrogance, laziness, copulation, fear and sleep.



Picture 3: Four variants of red colour urine

According to saint *Therayar Nirakkuri* **reddish black** (porphyrous/purpureal/*karunsivappu*) in the urine would be indicating hypertension (increasing blood pressure), **red rose petal** (magenta red) in urine would be indicating high blood pressure, **reddishness in black** (piceous/senkaruppu or puccoon/*irul sivappu* or cramoisy/*adar sivappu*) would be indicating excessive

blood pressure and **pure red** (dark red/*seppu niram*) would be indicating very high blood pressure.

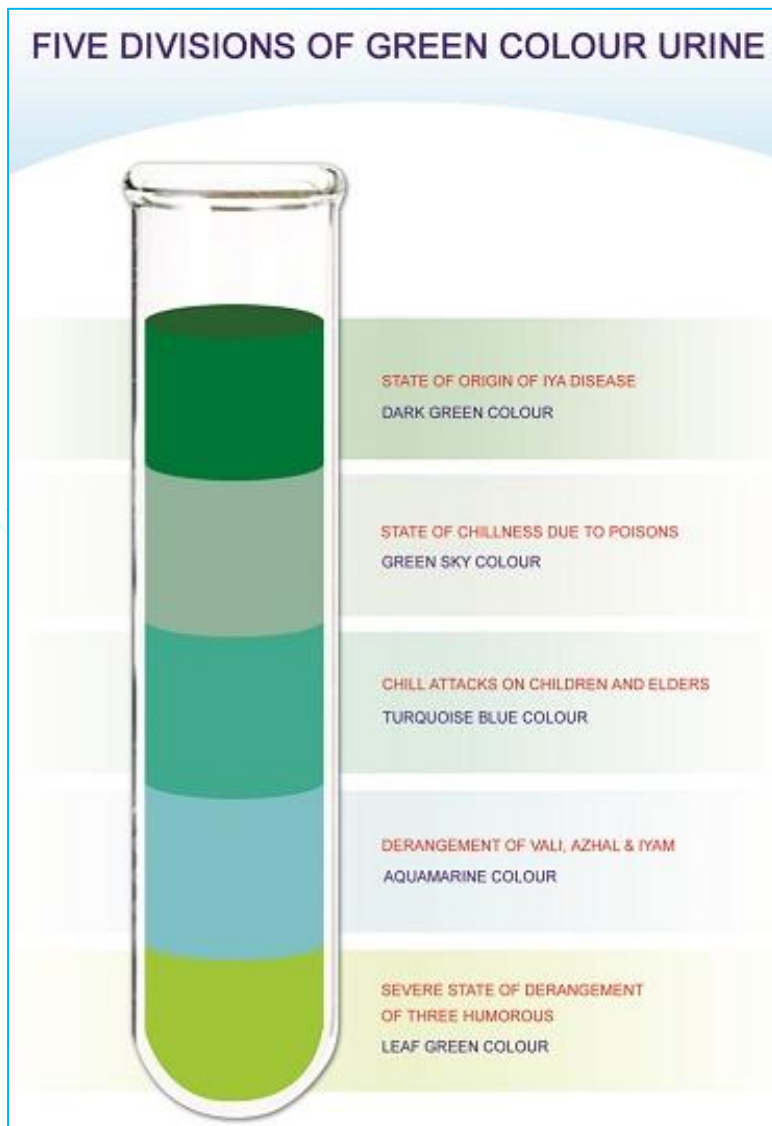
According to modern medical science **red** colour in urine is indicating cancers, infections, tumors, kidney and bladder stones, kidney diseases, rigid and c-shaped cells in sickle cell anemia, urinary tract infections, enlarged prostate,

cancerous and noncancerous tumors, kidney cysts, long-distance running, abnormal build-up of porphyrins, **pink** colour in the urine is indicating propofol, beets, blackberries, anthocyanin, red blood cells in the urine, hemoglobin in Nutcracker Syndrome, myoglobin in high impact exercise, glucose-6-phosphate dehydrogenase deficiency, thalassemia, stress, injuries, dye like phenolphthalein, lead or mercury poisoning, blackberry or beet ingestion, rhubarb, very low pH or very high pH, porphyria, warfarin, phenazopyridine, rifampin, ibuprofen, and deferoxamine, Hydroxocobalamin, senna laxatives,

amber colour is indicating dehydration, liver malfunctioning and **rose** colour is indicating urinary tract infection.

Green colour variants

According to Siddha texts five types of green colours are mentioned. The colour of abnormal urine is green and blue it shows the excessive function of *katru bhutam* (wind element). The natural colour of *Katru (vayu/wind) bhutham* is blue abundantly seen in the characters of running, sitting, walking, laying down and standing.



Picture 4: Five variants of green colour urine

According to Saint *Therayar Nirakkuri* **dark green** (corbeau/*karumpatchai*) in the urine would be indicating excessive chillness (seethala neer) in the body, **greensky** (ultramarine/*kadal neelam*) would be indicating toxicity with cold due to plant and animal poisoning, **turquoise blue** would be indicating too much of coldness seen in elders and children followed by *vali* (vaatha) diseases, **aquamarine** (cerulean/*kadarpatchai*) would be indicating the spoil of *mukkutram* (three humours) and **leaf green** (*elaipatchai*) would be indicating serious nature of *mukkutram* (three humours).

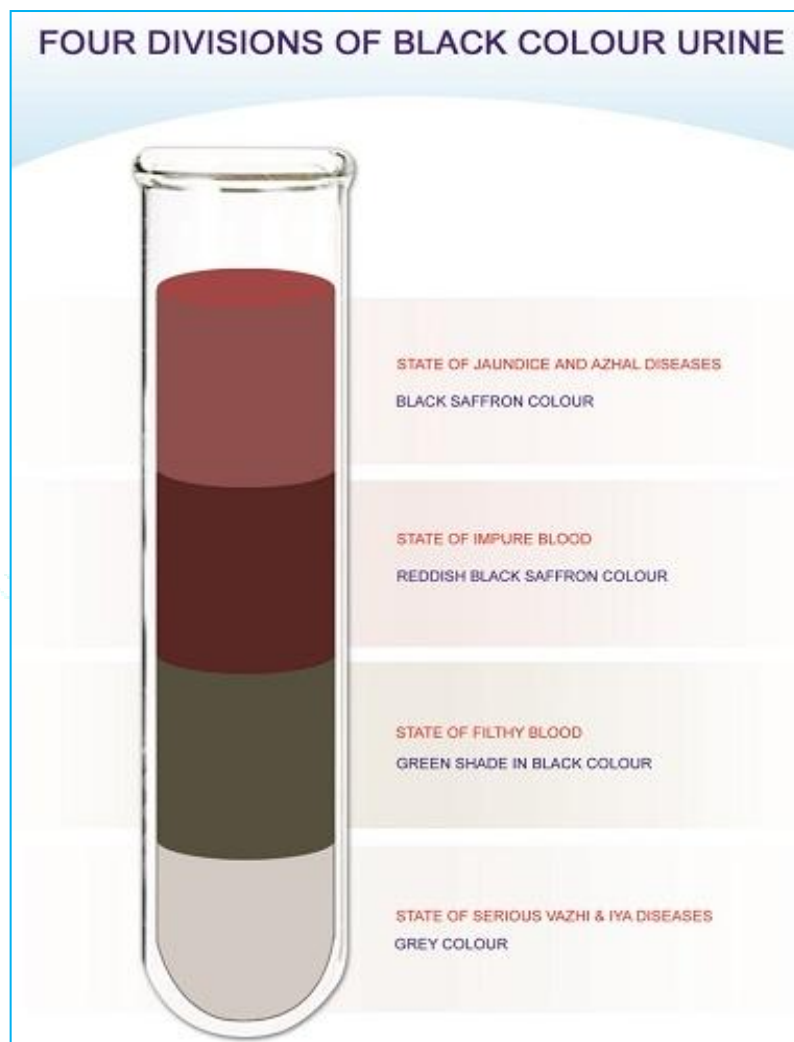
According to modern medical science the abnormal blue or green color in the urine is due to impaired ability to break down and digest the amino acid tryptophan which leads to its mass elimination via the urine, coloring it blue and the blue urine with yellow urochrome becomes green or with yellow bilirubin becomes green or with yellow pigment biliverdin and oxygen brownish green.

The change in urine **blue** colour is indicating the intake of methylene blue dye, viagra, indomethacin, propofol, blue diaper syndrome, Hartnup disease, test dyes, amitriptyline, indomethacin and propofol, benign hypercalcemia (blue diaper syndrome), **green** colour is indicating the excess

conversion of yellow bilirubin into greenish yellow biliverdin, liver malfunction, pseudomonas bacterial infection, urinary tract infection, **dark green** in the urine is indicating urinary tract infection, a fistula in between the intestine and urethra, chlorophyll pigments, promethazine, thymol, cimetidine, metoclopramide, amitriptyline, **deep purple** colour in the urine is indicating kidney failure, high concentration of wastes in blood and **violet colour** in the urine is indicating urinary tract infections, porphyria.

Black colour variants

According to Siddha texts four types of black colours are mentioned. The colour of abnormal urine is black it shows the excessive function of *veli bhutam* (sky element). The natural colour of *Veli (Akayam/sky)* bhutham is ash abundantly seen in the characters of lust, avarice, miserliness, pride and envy.



Picture 5: Four variants of black colour urine

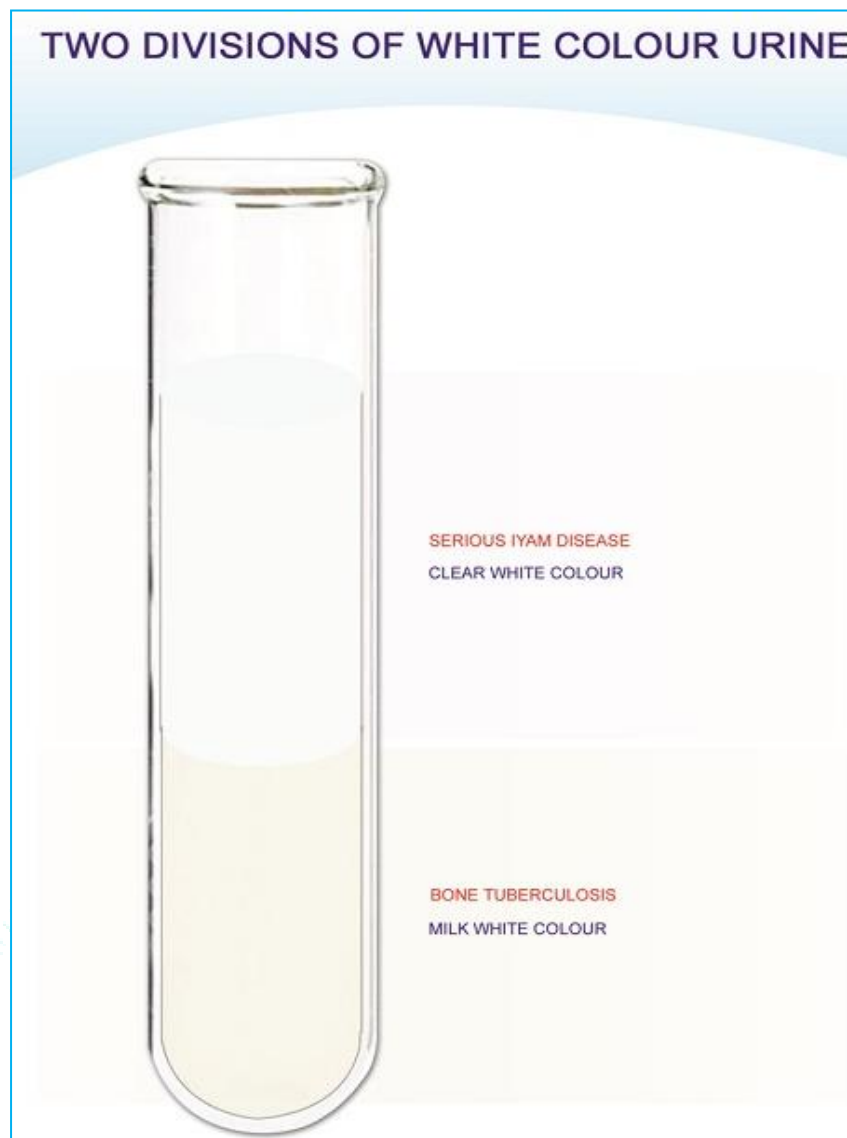
According to Saint *Therayar Nirakkuri* the abnormal **black saffron** (croceate/saffron/*kungumapoo*) colour in the urine would be indicating jaundice, dominant *azhal* diseases, **reddish black saffron** (rubiginous/*thurusivappu*) would be indicating impure blood green shade in black (*corbeau/karumpatchai*) would be indicating filthy blood and gray (*silver/pugai niram*) would be indicating the vitiation of *iyam (kabham)* and *vali (vatham)* due to fever in chronic kidney diseases.

According to modern medical science the abnormal **dark brown** and **black** is indicating high levels of L-Dopa, velvet and broad beans, rhubarb, fava beans, aloe, antimalarial drugs chloroquine, primaquine, metronidazole (Flagyl), nitrofurantoin (Furadantin), laxatives containing cascara or senna, methocarbamol, liver and kidney disorders, urinary tract infections, muscle injury from extreme exercise or massage, copper poisoning, biliary cirrhosis,

hepatitis, Wilson's disease, phenol poisoning, cancerous melanomas, melanin or melanogen containing foods, the **bluish black** is indicating Alkaptonuria, impaired heart function, arthritis, kidney and prostate stones, porphyria cutanea tarda, the **black** colour is indicating tyrosinosis release, intra muscular iron injections and **reddish brown** is indicating metronidazole, nitrofurantoin, methocarbamol, laxatives

White colour variants

According to Siddha texts two types of white colours are mentioned. The colour of abnormal white urine shows the excessive function of *neer bhutam* (water element). The natural colour of *Neer (Appu)* bhutham is crystal clear and abundantly seen in blood, fat, semen, urine, perspiration and bone marrow.



Picture 6: Two variants of white colour urine

According to Saint *Therayar Nirakkuri* the abnormal **clear white** (aluminium colour/*padiga niram*) colour in the urine would be indicating pure *iya* (*Kabham*) disease and difficulty in living, **milk white** (milk white/*palniram*) would be indicating *elumburikki* (tuberculosis), pelvic inflammatory disease, ulcers in the genitalia.

According to modern medical science the abnormal **cloudy white** colour is indicating pyuria, leukemia, acute glomerulonephritis, vaginal or cervical infections, or external urethral meatus, **opaque or milky** colour is indicating chyluria, urinary tract infection, sexually transmitted disease, stones, tumor, globules of fat in urine, calcium, phosphorus or oxalate crystals in urine, phosphaturia or a buildup of phosphate crystals in urine large ingestion of milk, tuberculosis of the urinary tract, kidney stones, clear urine is indicating excess fluid intake, diuretics, alcohol, caffeine, diabetes mellitus, diabetes insipidus.

DISCUSSION

Apart from the colour of the urine the sediments play main role to assess the dissolved electrolytes. The sediments, dispersion of electrolytes in the urine, co-morbidity, associated illness and existing diseases of the person

changes the probable diagnosis while assessing the characteristics of the urine.

If the appearance of the urine looks like milk or buttermilk it would be indicator for serious illness, like flesh washed water it would be weakness of the kidneys, like ghee it would be indicator of worst prognosis, like blood would be *vali* diseases, like matured fruit of *Citrus grandis* colour, shining like perchloride of mercury, gingelly oil would be *azhal* diseases, like dark yellow or blood colour would have jaundice, like white colour with froth and bubbles, pure water, several colours would be the indication for *iya* diseases.

The black colour in the urine would be indicating vitiation of three humours, blood mixed urine would be indicating kidney disorders, yellow in fever, abundant quantity pee during fever would be incurable, weightless and clear in decrease of *iyam*, thick consistency in vitiation of *vali*, *azhal* and *iyam* diseases, crystal clear in *vali* disease, yellow in *azhal* disease, frothy and white in *iya* disease, reddish in high blood pressure, more reddish in excess of *azhal*, white and scanty in *iya* diseases, dense and hard in hypertension, flesh piece mixed in *azhal* and *vali*, white, saltish and crystal clear in excess body heat, dense in short term fever, red and crystal clear in intermittent fever, dense and red

which changes into white in *azhal* disease of skull, ring like appearance on voided urine surface in heaviness of head, drowsiness, stagnation of red or yellow or clear colour in the bottom the vessel in left side head disease, clear and white or black colour during fever in right side head disease, sedimentation of red colour in the bottom of the vessel leaving crystal clear on the upper in chest pain and high fever, supernatant water of the curd in renal calculus, red and clear in liver diseases, black in fever associated with liver disorders and hair colour in heart diseases.

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CONCLUSION

Colour of the urine and its interpretation is only the beginning to assess the severity of problem alerting an individual that something is wrong in metabolism or renal function. The colour of the urine is further correlated with food already had. The taste, sediments, smell, froth, mass are the various factors certainly considered for further evaluation. The colour of the urine and its relation with humour disorder and five elements would explore scope for future research cost effectively.

