

Review On Study And Characteristics Of Human Liquid Waste (Urine) And Its Application

Rachana K Vaidya¹, Dr.S.B.Thakare²

^{1,2}Dept of Civil Engineering

^{1,2} Anantrao Pawar College of Engineering and Research Paravati ,Pune

Abstract- Human urine is a natural resource produce by every human being. About 91-96% of urine consist of water. Urine also contains miscellaneous of inorganic salts & organic compounds including proteins, hormones & a wide range of metabolites varying by our intake of food introduced into the body.

Keywords- urine, organic salt, inorganic salt.

I. INTRODUCTION

Urine is a liquid by-product of metabolism in the bodies of many animals, including humans. It is force out from the kidneys and flows through the ureters to the urine from the bladder, from which it is soon excreted from the body through the urethra during urination. Cellular metabolism creates numerous by-products, many nitrogenous (rich in nitrogen), that require clearance from the bloodstream. The by-products eventually force out from the body during urination, the primary method for excreting water-soluble chemicals from the body. The chemicals can be detected and analyzed by urinalysis. Many such substances that exist from urine, are the three main nitrogenous wastes of the mammalian body are urea, uric acid, and creatinine. Urine for animals forms part of the nitrogen cycle. In the balance ecosystems it fertilizes soil and plants, which in turn continue to support the animal population. Some animals use their urine it to mark their territories. Human urine and human feces are collectively referred to as human waste; as sewage, they require sewage treatment in places where population density is high. Livestock collection for urine and feces are similarly require proper management if the livestock collection population density is high. Such kind of management is the important part of ecological sanitation.

The urinary system comprises the kidneys, ureters, bladder, and urethra. The kidneys filter unwanted waste materials from the blood and regulate the levels of water and chemicals in the Body. The average adult cardiac output is about 1200 mL per minute, and about 25% of that is received by the kidneys per Minute. About 99% of the fluid circulating through the kidneys Protein breakdown), Water excretion/reabsorption, depending on fluid balance. Urine comprises primarily:

- Water (95%).
- Urea
- Chloride.
- Sodium.
- Potassium.
- Creatinine.
- Trace amounts of other ions, inorganic compounds, and organic compounds. ^[1]

II. COLOR, APPEARANCE, ODOR, AND VOLUME

Color is usually pale yellow/ amber and darkens when it becomes concentrated, but excessive fluid intake and some foods medications, stress, and exercise, may affect color. Urochrome is the pigment that gives urine its characteristic yellow color. A variety of medications and other agents may cause the urine to change color. The most common cause of Discoloration is blood, which may give the urine the pink, red, or smoky appearance.

Odor should be very slight, but some foods and medications, such as estrogen, may affect odor. Some bacteria may give urine a foul odor, depending upon the organism. Urine left at room temperature for >2 hours tends to develop an ammonia odor as bacteria converts urea into ammonia. If an ammonia odor is noted in a freshly voided specimen, this probably indicates that bacteria are active in the bladder, converting urea to ammonia. Some foods (such as asparagus), medications, and metabolic disorders may produce a strong or Distinctive urine odor.

Volume of urine for a healthy adult is about 750 and 2500 mL Of urine in 24 hours, or approximately 25 to 30 mL per hour. Children's output varies by age and size

- Infants and toddlers: 2-3 mL/kg/hr.
- Preschool and young school age: 1-2 mL/kg/hr.
- School age and adolescents: 0.5-1 mL/kg/hr.

Although children urinate smaller overall quantities, the volume is greater in related to body size. Urinary output may

vary according to fluid intake and fluid loss. For example, people may lose body fluids through perspiration at high temperatures, decreasing urinary output and increasing thirst to compensate:

- Polyuria is increased urinary output.
- Oliguria is decreased urinary output.
- Anuria is a complete lack of urinary output. ^[1]

III. APPLICATIONS OF URINE IN AGRICULTURE

For bean production

Yield produced by urine fertilized treatments were not comparable to the yield of industrial fertilized treatments; it has reached to a satisfactory level. Therefore urine can be considered a liquid fertilizer and a potential nitrogen fertilizer substitute for agricultural production. Thus, nitrogen would be more directly available and effective even in the dry season than the industrial fertilizers which remained undissolved during the dry season. If other nutrients, such as phosphorous and potassium can be supplied together, human urine can be considered as a potential nitrogen fertilizer in plant production.

For solanum lycopersicum and Capsicum SP.

The morphological studies of plants under investigation were observed. The stem height of plant in both tomato and capsicum were found to be increased with different concentration of urine. The leaves also showed a slight increase in their number. This is due to the presence of nitrogen, phosphorus, potassium, electrical conductivity and pH. and other trace elements in urine.

For Cultivation of Cabbage (Brassica oleracea)

Impacts on Chemical, Microbial, and Flavor Quality Human urine was used as a fertilizer in cabbage cultivation and compared with industrial fertilizer and non-fertilizer Treatments. Urine achieved equal fertilizer value to industrial fertilizer when both were used at a dose of 180 kg N/ha. Growth, biomass, and levels of chloride were slightly higher in urine-fertilized cabbage than with industrial-fertilized cabbage but clearly differed from non-fertilized. Insect damage was lower in urine-fertilized than in industrial-fertilized plots but more extensive than in non-fertilized plots.

Microbiological quality of urine-fertilized cabbage and sauerkraut made from the cabbage was similar to that in the other fertilized cabbages. Furthermore, the level of glucosinolates and the taste of sauerkrauts were similar in cabbages from all three fertilization treatments. Our results show that human urine could be used as a fertilizer for cabbage and does not pose any significant hygienic threats or leave any distinctive flavor in food products.

For banana and maize cultivation

Source separated human urine toilet systems that produce a safe human derived fertilizer can potentially contribute to a great improvement in quality of life and life expectancy by enabling sustainable food production as well as proper waste management. Anthropogenic liquid waste is known to contain appreciable quantity of plant nutrient elements (especially Nitrogen and other elements), which may be readily absorbed and assimilated by crops if used properly.

IV. CONCLUSION

Human urine contains large amount of nutrients such as nitrogen (N), Phosphorus (P) and potassium (K) and can replace industrial fertilizer. This high nutrients, low pathogen combination means that urine can be used very easily and safely to increase the yield of crops. Urine sanitation system is developing day by day throughout the world. It is easy to use urine fertilizer is very real and cheap benefits for farmers and with small gardens. It also reduces cost of chemical fertilizers.

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