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INVESTIGATING CONTAGIOUS PATHOGENS IN SLT SPITTING: A REPORT ON CHANDRAPUR CITY (M.S)

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Abstract :Chandrapur City is renowned for its coal-based super thermal power plant, cultural diversity, and a significant immigrant population engaged in the widespread consumption of kharra, Ghutka, Pan Masala, and smokeless tobacco. This prevalent habit, characterized by frequent spitting due to the areca nut in tobacco, raises concerns about disease transmission through droplets in the community. This study aims to assess the need for regulating public spitting, a potential source of airborne diseases. The objective is to isolate and identify infectious microorganisms from samples collected in various public spaces, including hospitals, railways, markets, cafes, pan shops, temples, and public toilets in Chandrapur City. Thirty samples were specifically collected from temple public restrooms. Microorganism quantification utilized the pour plate method, followed by selective media culturing and biochemical and enzymatic tests. The outcomes revealed the presence of pathogenic bacteria responsible for various potentially fatal diseases in humans. The study concludes with robust evidence supporting the consideration of prohibiting smokeless tobacco and its products, advocating for increased awareness campaigns, and recommending the installation of UV sterilizer spittoons.

***Index Terms*–smokeless tobacco, disease transmission, spitting, public health , microbial analysis**

I . INTRODUCTION

Spitting is the act of forcibly forcing saliva out of the mouth fluid. It is important to remember that saliva can contain tiny microorganisms like bacteria and virus that may spread from one person to another through spitting (Kar, S. K., Pandey,*et al.*, 2020). Although spitting may seem like a minor issue, it is actually a significant problem in Chandrapur and in India because of the variety of people who live here and how they behave, as well as the city's engaged culture.Areca nut or betel nut or supari, both of which are referred to being ingredients in Gutkha Pan masala smokeless tobacco, increase the urge to spit. An average person spits roughly 20 to 30 times in just 10 minutes, as this is the rate at which an infection spreads in India. habit of spitting. he people in Chandrapur come from all kinds of backgrounds and are of different ages. There are a lot of young people (18 to 35 years old), making up 40% of the population. There are also middle-aged adults (36 to 55 years old) who make up 35%, and older folks (above 55 years old) who make up 25%of the population There are many factors that can public spitting such as in hospitals can expose patients with the weaker immune system to viral disease is causing numerous factors there are many factors that can contribute to the transmission of harmful microorganisms.To recall some prior encounters, spitting was outright prohibited in COVID 19; the rationale for this was that spitting can spread viruses through airborne droplets, and if someone with the corona virus spits on the road, those droplets can infect someone nearby or a short distance away, or even act as the host body. Spitting was outlawed because this virus can remain active for extended periods of time, making it possible for any living thing or person exposed to the host body to contract the virus.

In Chandrapur spitting is a major concern not even a single day goes by without consuming tobacco or kharra.There are over 275 million people use tobacco in India, including 42 million who use both smoking and smokeless tobacco, 164 million who solely use smokeless tobacco, and 69 millionwho only smoke it so as white variety of people are present in this region this white variety of habit is also mean topic of concern that is spitting of the tobacco quid (Barik, *et al.*,2016). Even historical sites and landmarks are not freed from this behaviour of spitting Pits or holes in the road and red tobacco quid stains were among the most frequent sights I encountered as I traveled from my house to the college or anywhere else in the city, the residue of smokeless tobacco after chewing that is the quid .Paan, gutkha, and zarda are consumed orally, chewed, sucked, or administered topically to the gums and teeth (Niaz, *et al.*,2017) .Quid is the liquid that is released when the pinch of smokeless tobacco is held between the cheek and teeth. This liquid, also known as saliva, is spited all over the city Regardless of whether it is hospital , movie theatre , Book Store , temple railway station or café ect. A notable example is the mahakaliTemple, a revered religious site, marred by red stains resulting from spitting. The iconic Jatpura Gate, a symbol of Chandrapur, bears similar red marks due to the widespread habit of spitting tobacco products like Gutka and Pan Masala.

This practices extent to local markets as well despite being areas dedicated to commerce vegetable and fruit market are tained by the presence of spitting stains which go hand in hand with the ubiquitous consumption of tobacco related products even efforts to emblem the cities aesthetics are hindred as artistic murals likely to fall victim to unsightly tobacco stain.

In Chandrapur local vegetable market in ganjward, many vendors spit in front of there shops. The same is true of the clients.This demonstrates that using this type of tobacco can result in airborne viral diseases. The example of the vegetable vendor illustrates how one person's resentment can cause an infectious disease to spread throughout an entire community. In addition, as per the studies and activist claims indicate that Indian Railway uses 1200 crore gallon of water in india annually to remove spit stains. Regarding our city, Chandrapur, red stains can be seen on the walls and on the railroad tracks, platforms, and restrooms at railroad stations , the waste water runoffs are discharged into the rivers not only the waste water but the water from the stained roads and tobacco or ghutka stained walls during the rainy season are flown or discharged into the rivers , this water containing the pathogenic organisms or infectious saliva of the person gets mixed in the water body in which fishes or aquatic life are present. As a result, these rivers can become contaminated with infectious spits, which will result in contaminated fishes due to various contagious pathogens present in spitts, people consuming these fishes can be exposed to many diseases , also if these runoffs enter the rivers and the water is transported to municipal corporations before being consumed by us; this is similar to a viral infection for us or for a sizable community . Many male and even female figures not only in Chandrapur but all over India consume smokeless tobacco (Singh, *et al.*,2022) because it has been their habit since childhood and perhaps the traditional ritual of eating smokeless tobacco as described in the wish was inherited from their parents. against spitting caused by tobacco, it is important to solve this problem by reducing these red spots throughout the city, because the spread of the infection can be based on saliva spitting (Limere., *et al.*,2018) and these spots .There have been many instances reflecting the obsession of people with spitting, from Indian mothers and grandmothers doing it to prevent 'burinazar' to the metaphors like 'thoo-thookarna' and 'thookkarchaatna' which are regularly used in the Indian households spitting is traditionally accepted as tobacco or smokeless tobacco and Pan are consumed by people since centuries and is traditionally accepted South Asia is the region with the highest consumption of smokeless tobacco (Sinha,*et al.*,2018). Traditional forms like betel quid, tobacco with lime, and tobacco tooth powder are frequently used, and the usage of advanced things is increasing—not just among males but also among children, young people, women in their regeneration years, and dental and medical students.. Diseases like tuberculosis can stay active in the host body for a few hours and affect a healthy person by damaging their immune system. If the rickshaw driver has some communicable disease or bacterial infections , and has the habit of chewing smokeless tobacco and spitting in public places, the rickshaw driver is acting as a carrier of the disease as if he or she spit up on the road and go or drive a trailer across the city a then across the city by contaminating the city with saliva containing contagious pathogens that many people come into contact with in various locations such as next to a vegetable vendor or a fruit market in a children's play area, where children aged 5 to 70 with lower immunity are exposed .

According to tradition, every Indian spits without the anxiety of being judged because this is the ritual that is accepted by the Indian society. This is the only reason that the majority of places like public restrooms, gardens, temples, railway stations, and movie theaters allow it. This action can lead not only spread of diseases. But also pollute the environment Drivers, sick people, and vendors who spit on sidewalks and walls can also be carriers of contagious and viral diseases. This issue needs to be addressed, as a wide range of infections can be transmitted this way. Chewing tobacco is mainly consumed. Gutka is mainly consumed

outside Maharashtra, whereas kharrais widely consumed in the state. The only problem is when people spit and have certain diseases that can cause infections. Spitting in public places, such as hospitals, can expose immune-compromised patients to viral illness. There are many factors that can contribute to the transmission of harmful microorganisms and viruses. When an infected cigarette smoker spits on the ground or in the street and a normal, healthy person who does not use smokeless tobacco enters an area where an infected person has previously spit, the virus can be spread in their shoes. can be brought into the home, where the infection spreads. Exhaling smokeless tobacco can also cause passive infection, just as actual cigarette smokers infect passive smokers. Spitting smokeless tobacco, or gutka poses a significant risk of spreading infectious disease as well as harming personal health.

When people exhale this tobacco mixture in public places, it creates an environment conducive to the transmission of harmful pathogens. These salivary droplets can contain a variety of bacteria and viruses, including tuberculosis, hepatitis B, hepatitis C, and even the novel coronavirus. When droplets dry and become aerosols, these infectious agents become airborne, making them easier for others to inhale or come into contact with. Additionally, saliva-contaminated surfaces can become reservoirs for these pathogens, leading to indirect transmission through contact. Raising awareness of the health risks of empty spitting and promoting responsible practices are critical to preventing the spread of infectious diseases in our communities. The ejected velocity droplets are airborne and can be transmitted to specific host organisms and bodies, so they can also land on and contaminate fruits and vegetables.

Bacteria such as *Streptococcus, Staphylococcus, serratia* species *bacillus* species , found in saliva, have the capability to induce diverse infections, including those of respiratory and oral nature.Viral Entities or viral strains like the influenza virus commonly known as flu the rhinovirus a causative agent of the common cold), and coronaviruses including SARS-CoV-2, responsible for the COVID-19 pandemic have been identified in respiratory secretions and saliva. Spitting stands as a potential vector for propagating these viruses, particularly in confined or densely populated settings. Tuberculosis-Associated *Mycobacterium tuberculosis*, the bacterium responsible for tuberculosis, has been observed in respiratory secretions. The act of spitting could contribute to the transmission of tuberculosis in regions where the disease prevails. Fungal Organisms such as Candida, known to induce oral thrush, also finds its presence in saliva. The act of spitting has the potential to disseminate fungal infections in the oral and pharyngeal regions. Parasitic agents while less frequently conveyed through spitting, parasites like *Ent amoeba histolytic*, the causative agent of amoebiasis, have been identified in saliva. The consideration of potential parasitic infections remains vital.

The risk of disease transmission via spitting is influenced by variables including pathogen type, environmental conditions, pathogen density, and physical proximity between individuals. To mitigate this risk, implementation of robust hygiene practices, discouragement of spitting in public spaces, and elevation of awareness concerning the health hazards associated with spitting stand as indispensable measures in curbing the dissemination of these microorganisms

Due to the wide availability and prevalence of tobacco use in various forms, it is a major problem in India. The poor, uneducated and men consume tobacco more than average.Emphasizing socioeconomic issues is critical because people from low socioeconomic backgrounds often lack the resources to combat the ill health or negative effects of tobacco use. The prevalence of tobacco use varies between higher and lower socioeconomic classes, as well as differences in the type, amount, and dependence of tobacco use, which increase the burden of tobacco-related disease.Effective tobacco control measures need to be prioritized, considering various factors such as socioeconomic status, population growth, marketing strategies, and pricing that influence tobacco consumption.The historical context of tobacco control legislation in India and the challenges in its enforcement were explored. Despite existing policies, tobacco consumption continues to escalate. Recognizing the complexity of the situation, it's evident that innovative solutions are required. The aim of this research is to provide an evidence to strictly stop public spitting ,and declare spitting as a potential risk that leads to transfer of various contagious pathogens .

Figure 1 (public toilet ,chandrapur)

Figure 2(Sampling site :- Tea center azad garden, chandrapur)

Figure 3(Sampling site :-railway station ,chandrapur)

Figure 4(Sampling site :- Mahakali mandir , chandrapur)

For instance, the installation and maintenance of spittoons with uv sterilizeing basins in public spaces by health professionals could be an effective approach. Fostering creative youth-led initiatives and intensifying efforts to prevent tobacco use among young individuals are imperative. Viewing tobacco control as a societal and public health priority, essential for enhancing overall quality of life, is paramount, shifting away from purely commercial considerations. Given the substantial influence and global reach of industries like Pan Masala, a balanced approach is needed to address this multifaceted challenge

II . STATISTICS

A survey was conducted regarding the sales of Smokeless tobacco in the city daily . In the diameter of 1km area of main chandrapur city 20 pan shops were noted. Around 300 packs of smokeless tobacco requires 8kg of betel nut in a day resulting in the consumption of 17,52,000 kg of betel nut yearly

Time period	Units of tobacco packets sold	Betel nut In kg
Daily	300	8 kg
Monthly	9,000	240 kg
Yearly (1 shop)	3,28,5000	87,600 kg
Yearly (20 shops)	65,700,000	17,52,000 kg

III . RESEARCH METHODOLOGY

3.1 Sample collection

Spittle sample were Collected from different sites such as Government Hospital Chandrapur, vegetable Market Ganj ward chandrapur, Mahakali Temple, Railway station, Public toilet , cafe ect . The samples were collected with sterile swabs with 0.9% saline solution in it . Quantification of sample was done by serial dilution methord and sterile swabs .

Figure 5 (Sampling site :-vegetable market ganj ward ,chandrapur)

3.2 Isolation and identification of unknown organisms

Organisms were cultured on nutrient agar plates and sub cultured on nutrient agar slants, colony morphology was done after 24 hrs of incubation followed by gram staining along with sub culturing on various selective medias , followed by biochemical tests and enzymatic tests .

IV . RESULT AND DISSCUSION

Name of isolates	Form	Size	Elevation	Margin	Surface	Opacity	Pigment	Gram Staining	Shape
A1 , A5	Circular	Medium	Flat	smooth	smooth	Opaque	Pale yellow	+ve	Cocci in cluster
A4 , B1	Irregular	Medium	Flat	Irregular	smooth	Opaque	white	+ve	Rods in chain
D4	Circular	small	Raised Convex	smooth	Glossy	Opaque	Off white	-ve	Rods
D5	Circular	small	Raised	smooth	Smooth	Opaque	White	-ve	Rods
B2	Round	Small	Raised	smooth	Smooth	Opaque	Pink	-ve	Rods
F5	Irregular	Medium	Raised	Rough	Rough	Opaque	Off white	+ve	Rods in chain

Table 4.1 Colony morphology

Nam of isola te	TSI	Bair d Park er Aga r	EM B Ag ar	Bismu th Sulphi de Agar	Choclate Agar	Mackon key Agar	Blood Agar	Polym yxin Agar	Manit ol salt Agar	Salmon ella Shigella Agar
A1 , A5	-ve (red slant+but t	+ve	-ve	-ve	+ve(hemoly sis)	-ve	+ve(hemolysi s)	-ve	+ve	-ve
A4 , B1	-ve (red slant+but t	-ve	-ve	+ve	+ve(hemoly sis)	-ve	+ve(hemolysi s)	+ve	-ve	-ve
D4	+ve (red butt+yell ow slant +H2S)	-ve	-	+ve	+ve(hemoly sis)	+ve	+ve(hemolysi s)	-ve	-ve	+ve
D5	+ve (yellow butt+red slant	-ve	-ve	+ve	-ve	-ve	+ve(hemolysi s)	-ve	-ve	+ve
B2	+ve (yellow slant + butt +H2S)	-ve	-ve	+ve	-ve	+ve(pink colonies)	+ve(hemolysi s)	-ve	+ve	-ve
F5	+ve(yell ow slant+red butt+CO 2)	-ve	-ve	+ve	+ve(hemoly sis)	-ve	+ve(hemolysi s)	-ve	-ve	-ve

Table 4.2 Selective media

Name of isolates	Manitol	Lactose	Maltose	Glucose	Sorbitol	Gas
A1 , A5	+ve	+ve	-ve	+ve	+ve	+ve
A4 , B1	-ve	-ve	+ve	+ve	+ve	+ve
D4	+ve	-ve	+ve	+ve	+ve	V
D5	+ve	-ve	+ve	+ve	+ve	+ve
B2	+ve	-ve	+ve	+ve	+ve	+ve
F5	+ve	-ve	+ve	+ve	+ve	+ve

Table 4.3 Sugar fermentation

+ve=gas formation -ve=no gas formation V=variable

Name of isolates	Indol	Methyl Red test	Voges proskauer test	Citrate utilisation test	Peptidase (Geletinase Test)	Amylase test	Lipase test	Oxidase test	Catalase test
A1 , A5	-ve	+ve	+ve	+ve	-ve	+ve	+ve	-ve	+ve
A4 , B1	-ve	-ve	+ve	+ve	+ve	+ve	+ve	-ve	+ve
D4	-ve	+ve	-ve	-ve	-ve	+ve	-ve	+ve	+ve
D5	+ve	+ve	+ve	-ve	+ve	+ve	-ve	-ve	+ve
B2	-ve	+ve	+ve	+ve	+ve	+ve	+ve	-ve	+ve
F5	+ve	-ve	+ve	-ve	+ve	+ve	+ve	-ve	+Ve

Table 4.4 Biochemical Tests

Name of isolates	Confirmation Tests	Suspected Microorganisms	Related diseases
A1 , A5	Positive on Baird Parker Agar with black coloured colonies	*Staphylococcus* species	Wide range of clinical infections including respiratory tract infection
A4 , B1	Positive on Polymyxin (MEYP) Agar	*Bacillus cereus*	Food Poisoning
D4	Positive on Salmonella Shigella agar	*Salmonella* species	Food born infections , Typhoid
D5	Positive on salmonella Shigella agar , H2S production on TSI slant , gram negative bacteria .	*Shigella*species	Interstinal infections ,dysentery
B2	Pink coloured colonies on Nutrient agar	*Serratia* species	Responsible for various infections like urinary tract infection and blood stream infection.
F5	Gram positive , rod shaped bacteria	*Bacillus anthracis*	responsible for anthrax

Table 4.5 suspected microorganisms

Descriptive statstics of the outcome

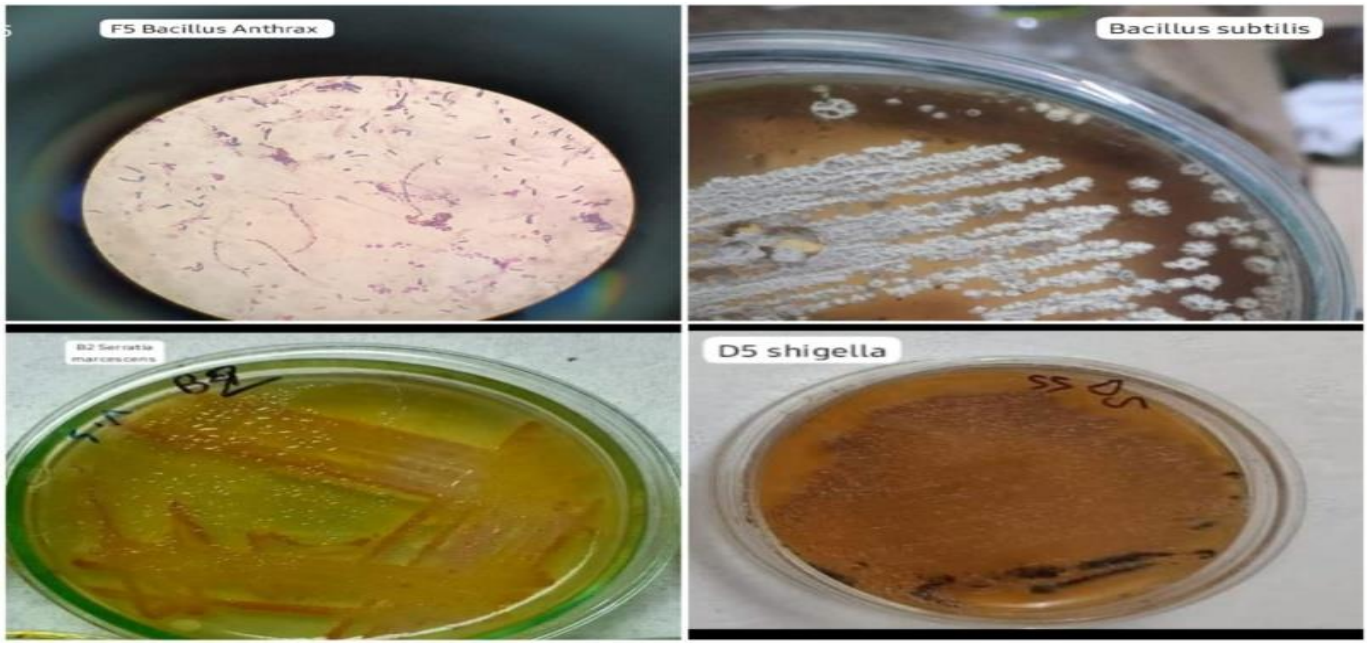
Table 4.1 Colony morphology - Notably, isolates A1 and A5 displayed circular colonies of medium size, with a flat and smooth surface. They exhibited an opaque appearance and a pale yellow pigment, indicating a Gram-positive nature in cocci cluster formations. On the other hand, isolates A4 and B1 presented irregular colonies of medium size, featuring an irregular margin and a smooth surface. These isolates displayed an opaque, white appearance with Gram-positive characteristics, presenting as rods in chain formations. Isolate D4 showcased circular colonies of small size, raised in a convex manner with a smooth and glossy surface. The colony appeared opaque and off-white, with Gram-negative characteristics observed in rod formations. Isolate D5 exhibited similar circular, small colonies, but with a raised and smooth surface, displaying an opaque, white appearance and Gram-negative rod formations .Isolate B2, in contrast, presented round colonies of small size, raised with a smooth surface. The colonies were opaque and showcased a pink pigment, indicating a Gram-negative nature in rod formations. Lastly, isolate F5 displayed irregular colonies of medium size, raised with a rough surface. The colonies were opaque and off-white, and the Gram-positive nature was observed in rod formations arranged in chains.

Table 4.2 Selective medias, the results obtained from the isolation of of bacteria on various selective media are presented. The isolated strains were tested on different agar types, including TSI (Triple Sugar Iron) agar, Baird Parker agar, EMB (Eosin Methylene Blue) agar, Bismuth Sulphide agar, Chocolate agar, MacConkey agar, Blood agar, Polymyxin agar, Mannitol Salt agar, and Salmonella Shigella agar. For samples A1 and A5, the TSI agar showed a negative result with a red slant and butt. The Baird Parker agar exhibited a positive result, while EMB agar, Bismuth Sulphide agar, Chocolate agar, MacConkey agar, and Mannitol Salt agar displayed negative outcomes. Blood agar and Polymyxin agar showed positive results with hemolysis. Salmonella Shigella agar presented a negative outcome. In contrast, samples A4 and B1 exhibited a negative result on TSI agar, Baird Parker agar, EMB agar, and Mannitol Salt agar, while positive outcomes were observed on Chocolate agar, MacConkey agar, Blood agar, and Polymyxin agar, with hemolysis seen on the latter two. Bismuth Sulphide agar showed a positive result, and Salmonella Shigella agar displayed a negative result. Sample D4 demonstrated a positive result on TSI agar with a red butt and yellow slant, and it displayed positive outcomes on EMB agar, Chocolate agar, MacConkey agar, Blood agar, and Polymyxin agar, with hemolysis observed on the last two. Bismuth Sulphide agar showed a negative result, while Salmonella Shigella agar displayed a positive outcome.Sample D5 exhibited a positive result on TSI agar with a yellow butt and red slant. It showed positive outcomes on EMB agar, Chocolate agar, and Salmonella Shigella agar, with negative results on Baird Parker agar, Bismuth Sulphide agar, MacConkey agar, Blood agar, and Polymyxin agar.Sample B2 displayed a positive result on TSI agar with a yellow slant, butt, and H2S production. It showed positive outcomes on EMB agar, Chocolate agar, and MacConkey agar, with negative results on Baird Parker agar, Bismuth Sulphide agar, Blood agar, Polymyxin agar, Mannitol Salt

agar, and Salmonella Shigella agar.Finally, sample F5 exhibited a positive result on TSI agar with a yellow slant, red butt, and CO2 production. It displayed positive outcomes on EMB agar, Chocolate agar, and Polymyxin agar, with negative results on Baird Parker agar, Bismuth Sulphide agar, MacConkey agar, Blood agar, Mannitol Salt agar, and Salmonella Shigella agar.

Table 4.3 Sugar fermentation Tests provide valuable insights into the metabolic activities of the microbial isolates. A1 and A5 exhibited positive fermentation for mannitol and glucose, while lactose and maltose fermentation was negative and positive, respectively. A4 and B1 displayed negative fermentation for mannitol and lactose, with positive results for maltose and glucose. Isolate D4 demonstrated positive fermentation for mannitol, maltose, and glucose, while lactose fermentation was negative. Similarly, D5 and B2 both showcased positive fermentation for mannitol, maltose, and glucose, with negative results for lactose. F5 exhibited positive fermentation for mannitol, maltose, and glucose, with negative lactose fermentation. Gas production was observed in isolates A1, A5, A4, B1, D4, D5, and B2. These findings suggest variations in sugar utilization patterns among the isolates, highlighting the diversity in their metabolic capabilities. The positive fermentation of mannitol, maltose, and glucose by several isolates indicates their ability to metabolize these sugars, potentially contributing to their ecological niches. The presence of gas production further suggests the involvement of fermentative processes. These results contribute to a comprehensive understanding of the isolates' metabolic profiles, which is crucial for elucidating their roles in environmental and clinical contexts.

Table 4.4 Biochemical Tests The isolates were subjected to various biochemical tests to elucidate their metabolic characteristics. Isolates A1 and A5 exhibited a negative result for indole production, a positive result for the Methyl Red test, Voges-Proskauer test, and citrate utilization test, while showing negative results for peptidase (gelatinase test), amylase test, and oxidase test. They displayed a positive result for the catalase test.Isolates A4 and B1, on the other hand, showed negative results for indole production, Methyl Red test, and catalase test. They were positive for the Voges-Proskauer test, citrate utilization test, peptidase (gelatinase test), amylase test, and oxidase test.Isolate D4 exhibited a negative result for indole production, Voges-Proskauer test, and citrate utilization test, while being positive for the Methyl Red test, peptidase (gelatinase test), amylase test, and oxidase test. It displayed a positive result for the catalase test.Isolate D5 demonstrated positive results for indole production, Methyl Red test, Voges-Proskauer test, peptidase (gelatinase test), amylase test, and oxidase test. However, it showed a negative result for the citrate utilization test and catalase test.Isolate B2 presented a negative result for indole production and a positive result for the Methyl Red test, Voges-Proskauer test, citrate utilization test, peptidase (gelatinase test), amylase test, and oxidase test. It exhibited a negative result for the catalase test.Lastly, isolate F5 displayed a positive result for indole production, Voges-Proskauer test, peptidase (gelatinase test), amylase test, and oxidase test. It showed a negative result for the Methyl Red test, citrate utilization test, and catalase test(Ziser, Steve .,1983)



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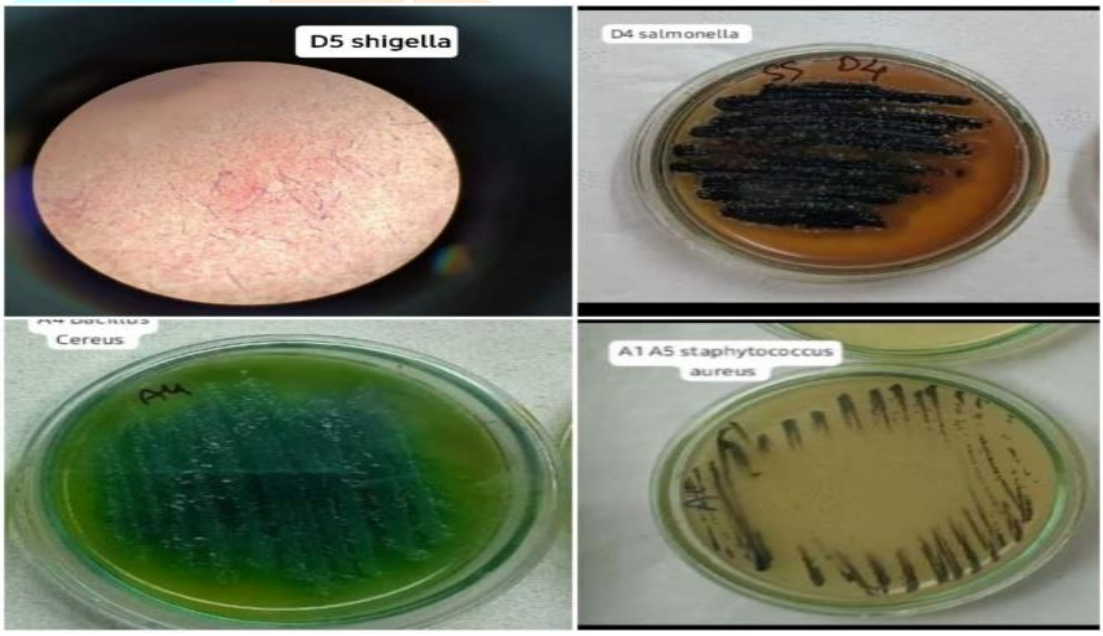

Figure *6*

CONCLUSION

The Findings reveal the presence of pathogenic isolates as, *Staphylococcus* species (A1, A5) were discerned by the formation of black colonies on Baird-Parker Agar with egg yolk tellurite and the production of H2S gas (Missiakas,*et al.*,2013) . *Bacillus cereus* (A4, B1) was suspected, exhibiting positive reactions and pale green colonies on polymyxin agar(Byeongkang, *et al.*,2017) (Kim *et al.*,1971). Salmonella species (D4) were identified through black colonies on Salmonella Shigella Agar(Olmedo-Reneam,*et al*.,2020) while *Shigella* (D5) displayed cream-colored colonies on the same medium(Dekker,*et al.*,2015), lacking H2S production. *Serratia* (B2) was distinguished by red-pigmented colonies on nutrient agar (Li,*et al.*,2011). *Bacillus anthracis* (F5) was suspected based on Gram-positive bacilli morphology and the presence of spore-bearing chains(Spencer R. C, *et al.*,2003*)*. These findings contribute valuable insights This evidence underscores the urgent need to address public spitting as a potential health hazard. Spittons should be installed with uvsteriliser compartments .Spreading of awarness ,imposing fines with strict guidelines.My research aims to

provide evidence supporting the imperative need to eliminate public spitting for the target of eliminating transmission of diseases for public health As per ministry of health and family welfare .It becomes evidence that controlling spitting can contribute to public health goals. Therefore, , it is imperative to implement measures to eliminate public spitting .

REFERENCE

1.Kar, S. K., Pandey, P., & Singh, N. (2020). Understanding the Psychological Underpinning of Spitting: Relevance in the Context of COVID-19. Indian journal of psychological medicine .
2.Gupta, P. C., & Ray, C. S. (2003). Smokeless tobacco and health in India and South Asia
3.Barik, A., Rai, R. K., Gorain, A., Majumdar, S., & Chowdhury, A. (2016). Socio-economic disparities in tobacco consumption in rural India: evidence from a health and demographic surveillance system .
4.Niaz, K., Maqbool, F., Khan, F., Bahadar, H., Ismail Hassan, F., &Abdollahi, M. (2017). Smokeless tobacco (paan and gutkha) consumption, prevalence, and contribution to oral cancer .
5.Singh, P. K., Jain, P., Singh, N., Singh, L., & Singh, S. (2022). Smokeless Tobacco Use among Pregnant Women in India: The Tale of Two Nationally Representative Surveys .
6.Limeres Posse J, Diz Dios P, Scully C. (2018) Infection Transmission by Saliva and the Paradoxical Protective Role of Saliva. Saliva Protection and Transmissible Diseases.
7.Sinha, D. N., Gupta, P. C., Kumar, A., Bhartiya, D., Agarwal, N., Sharma, S., Singh, H., Parascandola, M., &Mehrotra, R. (2018). The Poorest of Poor Suffer the Greatest Burden From Smokeless Tobacco Use: A Study From 140 Countries.
8.Ziser, Steve (1983) "The Identification of Unknown Bacteria," Iowa Science Teachers Journal: Vol. 20: No. 3, Article 5.
9.Missiakas, D. M., &Schneewind, O.(2013). Growth and laboratory maintenance of Staphylococcus aureus. Current protocols in microbiology, Chapter 9, Unit-9C.1.
10.Byeong Kang, Jung-Whan Chon, Dong-Hyeon Kim, Dana Jeong, Hong-Seok Kim, Hyunsook Kim, Kun-Ho Seo, 2017 Improvement of Polymyxin-Egg Yolk-Mannitol-Bromothymol Blue Agar for the Enumeration and Isolation of Bacillus cereus in Various Foods, Journal of Food Protection, Volume 80, Issue 3,
11.Kim, H. U., &Goepfert, J. M. (1971). Enumeration and identification of Bacillus cereus in foods. I. 24-hour presumptive test medium. Applied microbiology, 22(4), 581-587
12.Olmedo-Reneaum, Alejandro & Molina-Jaimes, Aaron &Conde-Vazquez, Eliezer & Montero-Vazquez, Stefania. (2020). Rosal-Dorfman disease and superinfection due to Salmonella enterica and Mycobacterium avium complex in a patient living with HIV.
13.Dekker, J. P., & Frank, K. M. (2015). Salmonella, Shigella, and yersinia. Clinics in laboratory medicine, 35(2), 225-246.
14. Li, B., Yu, R., Liu, B., Tang, Q., Zhang, G., Wang, Y., Xie, G., & Sun, G. (2011). Characterization and comparison of serratiamarcescens isolated from edible cactus andfrom silkworm for virulence potential and chitosan susceptibility. Brazilian journal of microbiology: [publication of the Brazilian Society for Microbiology], 42(1), 96-104. 6 Spencer R. C. (2003). Bacillus anthracis, Joumal of clinical pathology, 56(3), 182-187