The American Journal of Applied sciences
(ISSN – 2689-0992)
VOLUME 04 ISSUE 06 Pages: 5-9
SJIF IMPACT FACTOR (2020: 5. 276) (2021: 5. 634) (2022: 6. 176)
OCLC – 1121105553 METADATA IF – 7.987
Publisher: The USA Journals

Journal Website: https://theamericanjournals.com/index.php/tajas

Research Article

RHODOTORULA SPECIES AS AN EMERGING OPPORTUNISTIC PATHOGEN

Submission Date: May 29, 2022, Accepted Date: June 09, 2022,
Published Date: June 20, 2022 |
Crossref doi: https://doi.org/10.37547/tajas/Volume04Issue06-02

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ABSTRACT

Rhodotorula species, part of the Basidiomycota phylum, is a typical ecological yeast that is found in air, soil, lakes, sea water, and natural product juice. colonize plants, people, and different vertebrates. The class Rhodotorula incorporates eight species, of which Rhodotorula mucilaginosa, Rhodotorula glutinis, and Rhodotorula minuta are human pathogens. It produces pink to red colonies and possess unicellular blastoconidia that lacks pseudohyphae and hyphae. Rhodotorula spp. have been perceived as arising yeast pathogen in humans over the most recent twenty years. While no instances of Rhodotorula disease were accounted for in the clinical writing before 1985, the cases expanded after that time, no doubt in light of the more extensive utilization of serious medicines and focal venous catheters.

KEYWORDS

Venous catheters; Meningitis; Rhodotorula glutinis, Endophthalmitis, vasodilators.

INTRODUCTION

Recently considered non-pathogenic, Rhodotorula species have arisen as opportunistic microorganisms with the capacity to colonize and infect humans [1]. Recent studies exhibited that the rate of fungemia

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brought about by Rhodotorula was somewhere in the range of 0.5% and 2.3% in the USA and Europe respectively [2,3]. Most instances of disease with Rhodotorula fungemia are related with catheters in patients with haematologic malignancies [4]. Taking into account that Rhodotorula is an omnipresent and saprophytic parasite, the isolation of Rhodotorula from nonsterile human samples, particularly from the mucous films, has frequently been of clinical importance [5]. Localised infections without fungemia including endophthalmitis, onychomycosis, meningitis, prosthetic joint diseases, and peritonitis (generally connected with nonstop peritoneal dialysis) have been accounted for in immunocompromised and immunocompetent patient [6,7]. The primary report of fungemia was brought about by Rhodotorula in 1960 [8]. In this way, a rising number of cases have been documented, particularly over the most recent twenty years. Nonetheless, this increment might be a distribution predisposition after acknowledgment of Rhodotorula as a microbe [9]. One more conceivable clarification is the extension of new treatment modalities connected with basic consideration medication and transplantation [10,11].

Rhodotorula species as human pathogens

Though Rhodotorula species are widespread in the surrounding environment but is seldom connected to human sicknesses [12]. No instances of Rhodotorula disease had been recorded before 1985 but since then incidence rate representing somewhere in the range of 0.5 and 2.3 percent of all fungemia cases [13]. Rhodotorula genus incorporates Rhodotorula glutinis, Rhodotorula minuta, and Rhodotorula mucilaginosa (also known as Rhodotorula rubra) as human pathogens [14,15]. These yeasts can prompt confined invasions in both immunocompromised and immunocompetent hosts, as well as fungemia in immunocompromised patients [16]. Rhodotorula mucilaginosa is the most widely recognized pathogen for Rhodotorula associated eye diseases such as Keratitis, Endophthalmitis etc [17,18]. In addition, diseases such as Meningitis, peritonitis, onychomycosis, mouth ulcers, dermatitis, endocarditis, and lymphadenitis brought about by Rhodotorula [19,20]. Utilization of focal venous catheters around 1985 elevated the risk of Rhodotorula infections [21]. Another Rhodotorula species is Rhodotorula minuta and is responsible for causing endophthalmitis and prosthetic joint infections [22]. On the other hand, Meningitis and keratitis have been connected to Rhodotorula glutinis [23].

Rhodotorula species as a source of drugs

Rhodotorula species produces numerous drugs which are as follows:

- Rhodotorula glutinis produces cephalosporane derivatives and chitin and Rhodotorula rubra can be utilized to decrease substituted thiazolidines stereo selectively [24,25].
- In addition, Rhodotorula is known to produces 2-halogeno-3-hydroxy-3-phenylpropionic acid ester which are useful as coronary vasodilators [26].
- Both Rhodotorula rubra and Rhodotorula mucilaginosa make transhydroxy sulphone intermediate [27]
- Rhodotorula minuta is a magnificent lactose galacto-oligosaccharide producer [28]
- Rhodotorulic acid and itaconic acid is also produced by Rhodotorula species [29].
- Rhodotorula rubra microbial culture, treated p-hydroxy acetophenone with Eschenmoser's salt and carbonate resin followed by Pichia angusta yeast to accomplish synthesis of drug salmeterol xinafoate [30].it is used for the

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treatment of asthma and hepatic impairments [31].

- Carotenoid production in sugarcane juice by Rhodotorula rubra [32].

CONCLUSION

Rhodotorula species are universal saprophytic yeasts that can be recuperated from numerous ecological sources. Rhodotorula species have arisen as human pathogens causing fungemia, skin, visual, meningeal, prosthetic joint, and peritoneal infections.

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