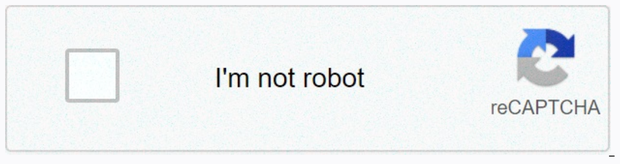

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S marcescens optimal growth temperature

This student page was not organized. Bacteria (Domain); Proteobacteria(Phylum); Gamma Proteobacteria(Class); Enterobacteriales(Order); Enterobacteriacee(Family); Seratia (Genus). Species Serratia marcess Description and meaning serratia marcess are a motile, short-formed rod, Gram-negative, faculty anescast bacteria, classified as an opportunistic pathogen. It was discovered in 1819 by Bartolomeo Bizio in Padua, Italy. The bizio named serratia in the genus of the honor and Italian rifle named Serratia, and chose masses for the species name after the Latin word for decomposed [3]. Serratia marcessnes were first thought to be harmless (non-wade). Due to its ability to produce red pigment, it was first used in 1906 as a marker in order to draw bacterial activities or transmission[4]. It was not until later in the 1950s that the U.S. government experimented with serratia mases and affected harmful hearts that the bacteria revealed. A study using Serratia marcess was carried out to determine the possibility of biological weapons being transmitted by wind currents. The famous Sea Spray Army operation is full of balloons and serratia marcesns and blown them over San Fransisco. Serratia marcessnes chose because it was easy to track because of its pigment production. However, there has been an increase in the number of pneumonia and urinary infection[1] reported in the region shortly after the experiment was conducted. Although marcesns Serratia was classified as a human pathogen in the 1960s, scientists still used it as a bacterial tracer well in the 1970s[10]. Optimally, Marcescens Serratia grows to 37°C, but can grow to temperatures that range from 5-40°C. They grow to pH levels that range from 5 to 9 [14]. Serratia marcessnes well known for the red pigment it produces called prodigiosin. Prodigiosin is made up of three pyrrole rings [15] and is not produced at 37°C, but at temperatures below 30°C [20]. The production of red pigment is not present in all tensions but of those who it is present, it may seem idle [10]. That's with the fact that Serratia marscens typically grow on bread and waves of communion are stored in moist places, led scientists to suggest contamination of Serratia as a possible explanation for transbstension miracles (conversion of the bread to the body and blood of Christ). For example, the history of the Miracle in Bolsena State that, in 1263, a priest and doubt christ's presence in the Army consecrated to preside over a mass of the basil in Bolsena. After speaking the words of dedication, without starting to drip out of the Army devoted to his hands and the altar [1]. This event was shown by Raphael on the walls of the Vatican [19]. Genome Young Structure of Serratia mascesnes therapies Db11 was sequence by the sanger with collaborating Dr.Jonathan Ewbank in Centre d'Immunologie de Marseille Luminy. The completed young man consists of one circular chrotomy at 5,113,802 bp with a G+C content of 59.51[21]. Phone structure and Metabolism Serratia are short masses and rotate-shaped bats. It is an anerobe faculty, meaning that it can grow to either the presence of oxygen (aerobic) or in the absence of oxygen (anaerobic). Primarily it uses eraser as means of assembling energy and has enzimes (sipexid dismutas, catalase or peroxide) that protects it from reactive oxygen species, allowing it to live in peroxide environments. Serratia marcesns is a gram of negative bacteria. Negative gram bacteria have a thin cell wall made in a single layer of peptidoglycan that is closed by an external membrane. The outward membrane contains lipolysaccharides (LPS), which is a special kind of phospholipid compound of fat acids that are attached to a dime of glucosamine phosphorus. A glucosamine one is then attached to a core polishing that extends to the polishings O polish [18]. The outward membrane also serves as a means to control the absorption of nutrients and the exclusion of toxin. The protein poles and transportation found in the envelope layers vary in selection [18]. Serratia marcessnes is motile and traveled by several different means. One single serratia marcess bacteria can swim with the use of its flagellum [17]. As a group they can swim together on aga at lower concentrations (0.5-0.8%) [8]. The swarmer cells can range in length from 5-30 µm and are very flagellated with however. Serratia marcessnes have about 100 – 1000 flagella per swimming cell [16]. Serratia marcesns can also form a biofilm (complex structures made of secret mucilaginous matrix form a protective layer in which they encamp [2]). Hydrolysis of kasein is not a common sense and is therefore useful in the differences in serratia marcessnes from the 438 strenses of Enterobacteriaceae and the Pseudomonacea family [12]. Serratia marcessnes have the reproduction capability of breaking kasein producing a clean on agar coating. Kasein is a precisiated protein from milk that forms the basis of cheese and certain plastic [5]. Serratia marcessnes use extracluded enzimes called proteus to break the peptide link (CO-NH) in case [4]. Similarly, an extraordinary enuremy called gelatinasez crushed gelatin, an incomplete protein that lacks septofan. Gelatin hydrolysis transformed protein into individual amino acids and caused it to liquid in cold conditions (under 25°C) when it would otherwise be solid [4]. There are other biochemical tests that help identify serratia marcessnes in the lab. It's negative for the red methyl test due to their production of 2,3 - menanediol and etanol, but positive for the Test Voges-Proskauer, displays the capabilities of an organism to convert pyruvate to acetoin[4]. Serratia marcessnes are negative for acid production on optics, but glucose positive with sucrose (and gas production) fermentation. Nitate tests are positive since nitate is generally used as accepting the final electron rather than oxygen[4]. Citrate (positive test) is used by serratia marcessnes civic assistance products. It's positive for decarboxylase, which is the removal of a group of cellulose into an amino acid, which produces an amino and carbon dioxide. Pigments of red (prodigiosin) that serratia marcessnes are known for cases of a distinguished factor but is only present in some tension. It is not exactly known why this is, but it is the hypothesis that it is a tightly regulated product. Prodigiosin can trigger a body's immune system (antibodies and T cells), so it is possible that serratia marcesns living in a human body will limit synthesis of prodigiosin and hence escaping detection by the army's immune system. Many tensions appear to have lost the ability to produce it at all. [3] The ecology of Serratia marcessnes is abnorable. It is often found in soil, water, plants and animals. It is largely present in non-portable water in underdeveloped countries due to poor chlorination. This microorganism is a common agent responsible for contamination of Petri's laboratory patches, and is also found to grow on bread [22]. Although marcescens S. is a microorganism's wade, it is only so with people who are immunopromised as those found in hospitals where many of the documented infections take place. The transmission mode of this microorganism is not either direct contact, or by secluded, droplets, saline irrigation solutions, and other solutions that are believed to be outward [22]. Pathology serratia marcess are an opportunistic pathogen that causes nosocomial infections. It is resistant to many antibiotics traditionally used to treat bacterial infections, such as penicillins and anilin [9]. This is due to all marcesns 'Serratia' feature; unique membrane (LPS) as a gram-negative bacteria, the survival ability of aerobic and anerobic condition, and its motility[10]. Most tensions are resistant to several antibiotics because of the presence of R-factors (fasting coding for antibiotic resistance) on plasmid[1]. There are many disorders associated with serratia marcesns: sepsis, bacteria, meningitis and serbral abscess, urinary urine infections, osteomitis, okile infections, and endositis[10]. Due to the wide range of disease seratia marscens causes, no one determines symptoms or origin sources. Biofilms are produced generally wade into the body[2]. Also, as mentioned in the cell structure, the LPS layer is attached with the outward membrane of the Gram negative battery. LPS acts as an endotoxin (a cell' which is innocent as long as the pathogen remains intact). The freedom of LPS would over-promote the armed defenses and cause them to undergo lethal endotoxic shock [16]. The presence of LPS therefore makes it difficult to kill Serratia marcessnes without causing the death of the host cells. Some of the antibiotics have proven to be effective against serratia mascenses are antipseudomonal beta-lactam antibiotics, which kill bacteria by banning synthesis of wall cells. Though they have developed and used to kill pseudomonas, they have also proven effective against serratia marscens[10] and other loans related to negative bacteria Grams. Part of the seamless nature of this organism is its ability to colonize any surface. For instance, serratia marcessns was identified as the most common organism found in both corneal broth and contact lenses[9]. It found, however, that polyquaternium-1 (a commercial bioid use of a lens contact disinfected solution) is active against the cytoplasmic membrane of mass serratia[6]. R-Factor S.marcescens has these R-factors that are a specific type of plasmid carry one or more genes that lecturers resistance to different types of antimic agents. The contribution of R-factors of resistance to Serratia from various drugs studied as far as 1969[23]. That study found that out of 22 multiple resistance steps, 21 were able to transfer some form of resistance to others. This study also demonstrates that drug resistance was far more prevalent in Serratia than in any other isolated member of the Enterobacteriaceae. It was also found that not only did the R-factors mediate resistance to the tensions that were once sensitive to certain drugs, but it further conferred additional resistance to drugs that were already resistant to [23]. Since then, other experiments have concluded that the transfer system of R-factors in Serratia's marcesns can temperature sensitive and more likely occur between those organisms which are found to be closer to related and philosophically. Efflux Pump Not only does marcessnes S. have R-factors that encode genes for particular drug resistance, but it also has more effective sophisticated pumps that further remove toxins that can be fatal to the microorganism. Specifically, SdeXY has pump into the first multidrug efflux that makes the RND Parts (Resistance-Nodulation-Cell Division) families found in S.marcescens. Sdey Youth is found to be a member of the RND family, while the SdeX is a member of the Protein Fusion Membrane. By working properly (indika), these proteins decrease the suspiciousness of the organism in eritromikin, tetracycline, norfloxacin, benzalkonium chlorist, embroidered ethium, acriflavine, and rhodamine 6G (reference 4). Other efflux pumps were also being categorized As the SdeAB RND pump and pump of SdeCDE RND. The former functions with a large specificity substrate and the letter consists of a protein fusion membrane (MFP) and two different RND transport (SdeD and Sde)[24]. Another type of effective multidirug pump found in this microorganism is an ABC-type efflux pump called SmdAB. Both SmdA and SmdB genes must be present and are necessary for resistance [25]. Current research A recent study suggests that Serratia marcessnost3 produces a novel prodigiosin called MAMPDM ((2,2'-[3-i 1-amyl-5'methyl-4-(1-pyrryl)]dipyrrylmethene)) which may have a significant impact on cancer treatment. This red pigment demonstrates a selective activity in cancer cell lines, but in conversely it reveals a reduced toxicity in non-malignant cells. They came to the conclusion that Serratia marcessnost3 power at one time can be used as a source to develop an anti-cancer compound [26]. Another study suggests that Serratia marcessns therapies NCTC 10211 may serve as a probiotic in preventing the growth of H.Pillar, the responsible agent of sale merchandise [27]. After examining several different species with bacteria strains, Serratia marcessnces NCTC 10211 reveal striking ban areas when inoculate with different HP strains. Components and/or mechanisms involved in preventing the proliferation of HP are still not well understood. Further research is needed to isolate and characterize the inhibitory substances so that they can be used for HP therapy. It is largely clear if serratia marcessnes have bacterial activities or if encouraging changes in the physiology and morphology of Hp. Serratia marcens have a unique ability to produce extracluded enzymes (28). Several such enzimes showed they have the ability to degrade Chitin, a substance that mainly comprises the ripe dissolvable cells (28). These chitinolytic enthusiasts could have possible industrial and agricultural uses such as the introduction of these genes to enrypt degraded chitin in crops as well as bacteria erasure (28). 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