Red tides are on both coasts of India- with 33 blooms in the East- is Responsible for tripling Cancer Rate in One Year!

Red tides are on both coasts of India- with 33 blooms in the East- while tripling the cancer rate that year- this is not a coincidence when you see that 39 individual mico, kareni, and brevitoxins are being made all in the ocean, and trillions of aerosols (suspension of fine solid particles or liquid droplets, in air or another gas.>) and spore released into the air on all the coasts of India, and working up the many rivers including In Mumbai and Kolkata, and working into the water table, where they wont be removed, unless you filter or heat over 300ºC. This is cancer soup!

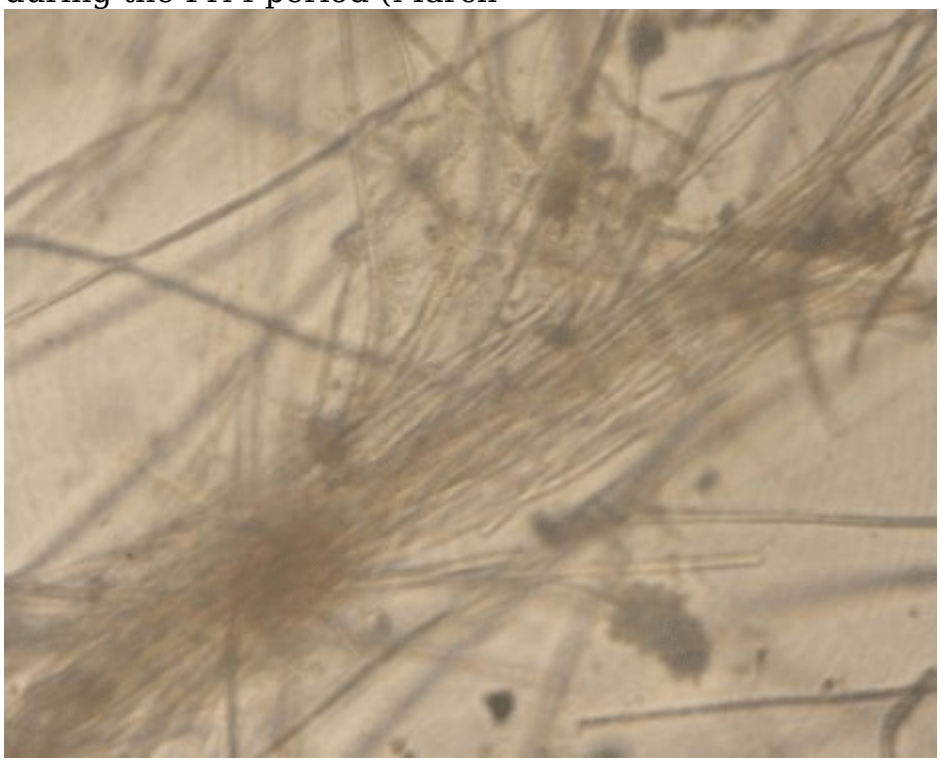
And; no surprise- Cancer cases rise by over 300% in 1 year Gujarat recorded the most number of cases of common cancer in 2018, followed by Karnataka, Maharashtra, Telangana & West Bengal
https://twitter.com/timesofindia/status/1190828443858087937
https://www.businessinsider.com/red-tide-is-deadlier-than-we-thought-2012-7?IR=T

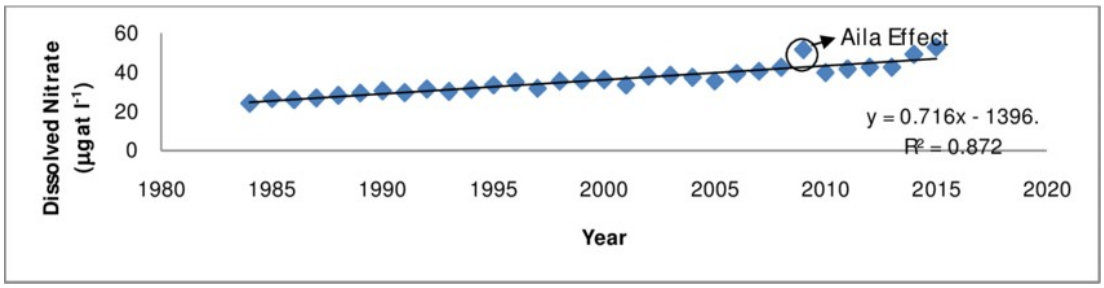
Thirty nine causative species were responsible for bloom occurrence (In India Table 3).
Trichodesmium erythraeum and Noctiluca scintillans were the common blooming species in coastal waters of India reported as a recurring annual feature (Gopinathan 1974; Devassy 1983; Devassy and Goes 1988;

Tiwari and Nair 1998; Mitbavkar and Anil 2002; Patil and Anil 2008). High abundance of Skeletonema costatum has been reported in Mumbai port subsequent to monsoon events, following the input of nutrients and lowered salinity (D'Costa and Anil 2010). Direct impact of HABs on human health has b een reported from Mangalore (Karunasagar et al. 1984) and Kerala (Karunasagar et al. 1998) coasts. In most cases of Noctiluca and Trichodesmium blooms, discolouration of water occurs, along with the virtual exclusion of organisms and decreased fish catch (Table 1). In some instances, blooms of these species have also caused fish mortality due to oxygen deficiency (Table 1). An open ocean bloom of the marine prymnesiophyte, Phaeocystis globosa was reported in central AS (along 64 ^{o} E) during the monsoon period between13–19 N in open waters (Madhupratap et al. 2000, data not shown). 3.2 East coast

There are 33 cases of algal bloom occurrences reported along the east coast of India (Table 2). Blooms of diatoms, dinoflagellates and cyanobacter ia have been reported from coastal waters along the east coast of India. Among these groups, diatoms were the most predominant with 12 bloom cases being reported (Table 2). Of the 12 causative species reported, Asterionella japonica (= Asterionella glacialis),

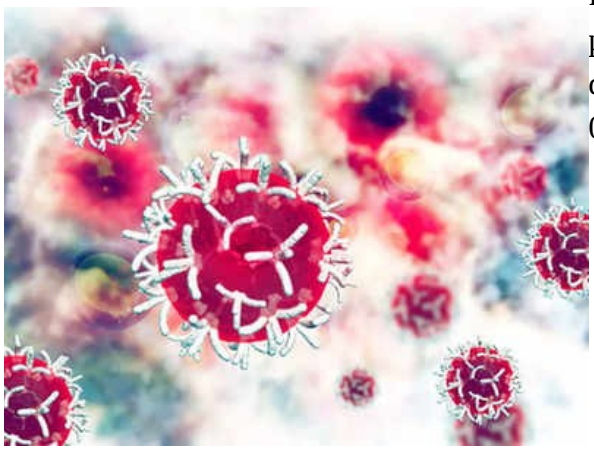
Noctiluca scintillans
and
Trichodesmium erythraeum
were the common bloom forming species on the east coast of India (T
able 3). Spatial distribution of bloom occurrences indicates their prevalence more towards the Tamil Nadu and Orissa coast (Fig. 2c).
Along the east coast of India, algal blooms occur throughout the year with the exception of January and November. Overall, maximum number of bloom cases was reported during the PrM period from March to May (Fig. 3a). Most diatom blooms prevailed during the PrM period (March–May) whereas dinoflagellate blooms occurred during April–August and were less frequent in the other months (Fig. 3c). Cyanobacterial blooms were reported mostly during the PrM period (March

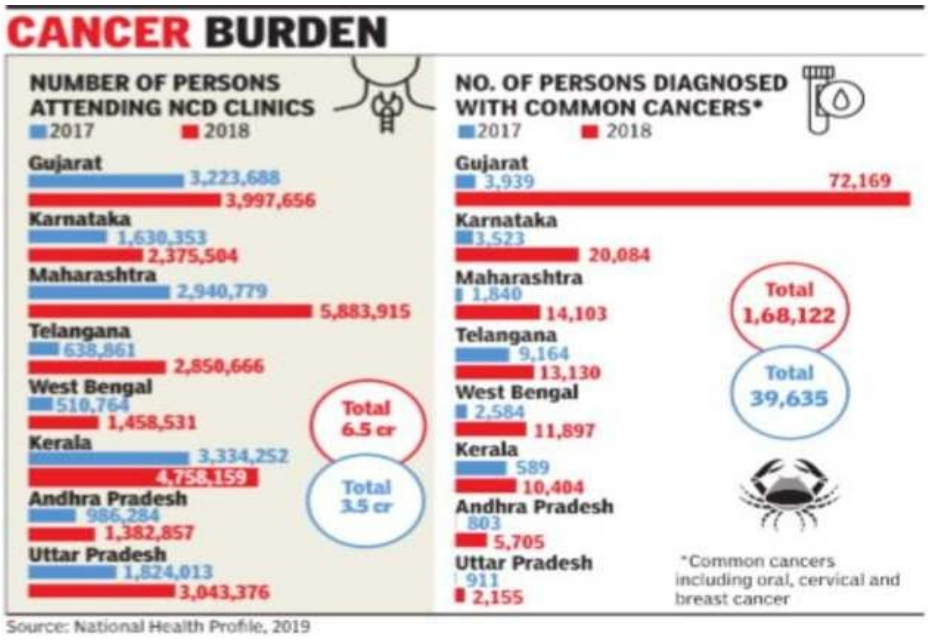


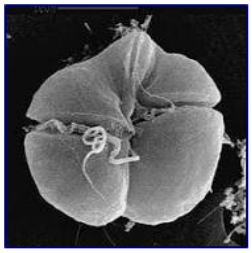


- https://timesofindia.indiatimes.**Oral, cervical and breast cancer up 324% from 2017 to 2018, in data released for 2019, in Delhi.**com/india/cancer-cases-rise-by-over-300-in-1-year/articleshow/71872746.cms

Considering the three decade data bank of nitrate, phosphate and silicate, we attempt to evaluate the temporal trend of these nutrients in an aquatic system of East Kolkata Wetlands (EKW). The trend for nitrate is uniform throughout the observation periods as revealed from the R 2 values (0.8726 during premonsoon, 0.9055 during monsoon and 0.9356 d...

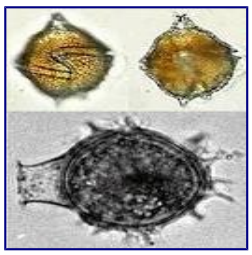






Karenia brevis

Karenia brevis is a microscopic, single-celled, photosynthetic organism that is part of the Karenia genus, a marine dinoflagellate commonly found in the waters of the Gulf of Mexico. Wikipedia



Gonyaulax

Gonyaulax is a genus of dinoflagellates with the type species Gonyaulax spinifera Diesing. Gonyaulax belongs to red dinoflagellates and commonly causes red tides. A few species produce a toxin similar to that of the dinoflagellate **Gonyaulax**; both **toxins** are fatal to fish and can irritate the nose and throat of humans if inhaled.

Gymnodinium

Interactions with the bacterial community are increasingly considered to have a significant influence on marine phytoplankton populations. Here we used a simplified dinoflagellate-bacterium experimental culture model to conclusively demonstrate that the toxic dinoflagellate Gymnodinium catenatum H. W. Graham requires growth-stimulatory marine bacteria for postgermination survival and growth, from the point of resting cyst germination through to vegetative growth at bloom concentrations (10(3)

Indian cancer cases up by 300% in 2018: data

Source: Xinhua| 2019-11-03 23:24:36|Editor: yan

NEW DELHI, Nov. 3 (Xinhua) -- The number of Cancer cases, including oral, cervical and breast cancer, rose by over 300 percent in India between 2017 and 2018, a latest official data has revealed.

According to the data, out of the 65 million people who visited the NCD clinics for screening, 160,000 were diagnosed with one of the cancers, as compared to 39,635 cases diagnosed in 2017.

Most of these cases were diagnosed at the Non-communicable diseases (NCDs) clinics run by the Indian government, said the data compiled by the National Health Profile-2019.

The most number of cancer cases were reported from the western state of Gujarat, followed by southern states of Karnataka, Maharashtra, Telangana and eastern state of West Bengal.

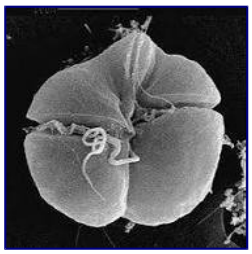
In Gujarat alone, around 72,169 cancer cases were registered in 2018, as compared to 3939 cases in 2017.

The steep rise in cancer cases was attributed to rapidly changing lifestyle, including stress, food habits, and consumption of tobacco products and alcohol.

According to a report in "The Times of India", doctors strongly recommend breastfeeding to counter the incidence of breast cancer among women.

Alexandrium

Alexandrium catenella is a species of dinoflagellates. It is among the group of *Alexandrium* species that produce *toxins* that cause paralytic shellfish poisoning, ..



Karenia

Gymnodinium

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Several Dinophysis species produce diarrhoetic toxins (okadaic acid and dinophysistoxins) and pectenotoxins, and cause gastointestinal illness, Diarrhetic Shellfish Poisoning (DSP), even at low cell densities ($<10^3$ cells·L^{-1}). They are the main threat, in terms of days of harvesting bans, to aquaculture in Northern Japan, Chile, and Europe. Toxicity and toxin profiles are very variable, more between strains than species. The distribution of DSP events mirrors that of shellfish production areas that have implemented toxin regulations, otherwise misinterpreted as bacterial or viral contamination. Field observations and laboratory experiments have shown that most of the toxins produced by Dinophysis are released into the medium, raising questions about the ecological role of extracelular toxins and their potential uptake by shellfish. Shellfish contamination results from a complex balance between food selection, adsorption, species-specific enzymatic transformations, and allometric processes. Highest risk areas are those combining Dinophysis strains with high cell content of okadaates, aquaculture with predominance of mytilids (good

accumulators of toxins), and consumers who frequently include mussels in their diet. Regions including pectenotoxins in their regulated phycotoxins will suffer from much longer harvesting bans and from disloyal competition with production areas where these toxins have been deregulated.
x

https://www.ncbi.nlm.nih.gov/

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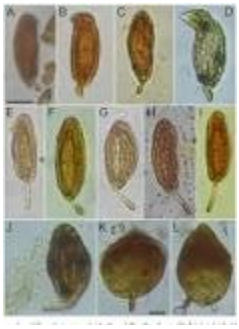
Dinophysis are a threat to shellfish aquaculture due to **toxic** lipophilic shellfish **toxins** that they produce. **Dinophysis** have cryptophyte-like pigments and at least seven species of **Dinophysis** contain diarrheic shellfish **toxins**.

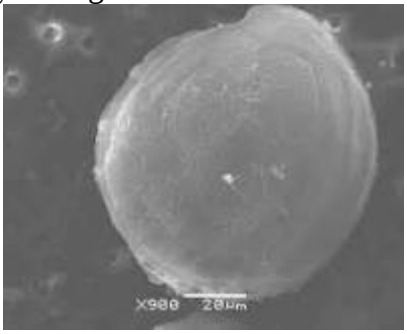
Dinophysis

A highly intense (27,000 cells mL-1) bloom of the nitrogen fixing cyanobacterium Trichodesmium erythraeum was observed in Burmanallah region of Port Blair in South Andaman during summer (March 2012). Hydrographical parameters were studied and nutrients like Nitrate, nitrite, phosphate and silicate were measured. It was found out that an increase in water temperature has initiated the bloom. Increase in salinity was also found to be a factor which had contributed to the bloom.

Read more at:
http://timesofindia.



The **Gymnodiniales** are an order of dinoflagellates, of the class Dinophyceae. Members of the order are known as gymnodinioid or gymnodinoid. They are athecate, or lacking an armored exterior, and as a result are relatively difficult to study because specimens are easily damaged.



Gambierdiscus toxicus is a species of dinoflagellates that can cause ciguatera, and is known to produce several polyether marine toxins, including ciguatoxin, maitotoxin, gambieric acid, and gambierol. The species was discovered attached to the surface of brown macroalgae in the Gambier Islands, French Polynesia

Gambierdiscus toxicus

Dinoflagellate species belonging to the genera *Gambierdiscus* and *Fukuyoa* produce ciguatoxins (CTXs), potent neurotoxins that concentrate in fish causing ciguatera fish poisoning (CFP) in humans. While the structures and toxicities of ciguatoxins isolated from fish in the Pacific and Caribbean are known, there are few data on the variation in toxicity between and among species of *Gambierdiscus* and *Fukuyoa*. Quantifying the differences in species-specific toxicity is especially important to developing an effective cell-based risk assessment strategy for CFP. This study analyzed the ciguatoxicity of 33 strains representing seven *Gambierdiscus* and one *Fukuyoa* species using a cell based Neuro-2a cytotoxicity assay. All strains were isolated from either the Caribbean or Gulf of Mexico. The average toxicity of each species was inversely proportional to growth rate, suggesting an evolutionary trade-off between an investment in growth versus the production of defensive compounds. While there is 2- to 27-fold variation in toxicity within species, there was a 1740-fold difference between the least and most toxic species. Consequently, production of CTX or CTX-like compounds is more dependent on the species present than on the random occurrence of high or low toxicity strains. Seven of the eight species tested (*G. belizeanus*, *G. caribaeus*, *G. carolinianus*, *G. carpenteri*, *Gambierdiscus* ribotype 2, *G. silvae* and *F. ruetzleri*) exhibited low toxicities, ranging from 0 to 24.5 fg CTX3C equivalents cell^{-1}, relative to *G. excentricus*, which had a toxicity of 469 fg CTX3C eq. cell^{-1}. Isolates of *G. excentricus* from other regions have shown similarly high toxicities. If the hypothesis that *G. excentricus* is the primary source of ciguatoxins in the Atlantic is confirmed, it should be possible to identify areas where CFP risk is greatest by monitoring only *G. excentricus* abundance using species-specific molecular assays.

Cancer cases in India spike by over 300% in 1 year, new govt data shows

3 Nov, 2019 **Oral, cervical and breast cancer up 324% from 2017 to 2018, in data released for 2019, in Delhi.**

The number of Indians diagnosed with cancer more than tripled between 2017 and 2018, according to a new government report. The increase is attributed to a rise in unhealthy lifestyles, as well as better detection.

Of the 65 million patients who visited state-run NCD (non-communicable disease) clinics in 2018, 160,000 were treated for common cancer – including cervical, oral, and breast cancer. Revealed in India's 2019 National Health Profile, the figure represents a nearly 324-percent increase from the previous year.

The number of people who used the government-run facilities nearly doubled from 2017-18, suggesting that cancer detection improved significantly over the two-year period.

Also on rt.com Apple and Samsung sued over 'cancer risk' from cell phone radiation

India's Health Ministry attributed the worrying uptick to poor diet and tobacco and alcohol use. India currently finds itself near the top of the list for overall number of cancer cases. India's cancer rate in proportion to its population is considerably lower than much of the developed world. However, poor data reporting and a shortage of oncologists in the country means that many cancer cases go undetected.

The report also had some positive news. The Health Ministry found that average life expectancy in India increased from 49.7 years in 1970-75 to 68.7 years in 2012-16.

Indian cancer cases up by 300% in 2018: data

Source: Xinhua| 2019-11-03 23:24:36|Editor: yan **Oral, cervical and breast cancer up 324% from 2017 to 2018, in data released for 2019, in Delhi. Cancer cases rise by over 300% in 1 year Gujarat recorded the most number of cases of common cancer in 2018, followed by Karnataka, Maharashtra, Telangana & West Bengal**

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According to a report in "The Times of India", doctors strongly recommend breastfeeding to counter the incidence of breast cancer among women.

Red Tide Is Even Deadlier Than We Thought

The plankton species responsible for some types of the toxic "red tide" that washes up in coastal areas could be more dangerous than we thought. These toxins can enter the food supply and kill humans.

New research into this plankton species, named ***Alexandrium tamarense,*** shows that it sends out multiple types of chemical weapons to kill its rivals. One of these toxins is deadly to larger organisms and the other is deadly to small organisms. ***Alexandrium tamarense*** is a species of dinoflagellates known to produce saxitoxin, a neurotoxin which causes the human illness clinically known as paralytic

shellfish poisoning (PSP). Multiple species of phytoplankton are known to produce saxitoxin, including at least 10 other species from the genus *Alexandrium*.

lexandrium tamarense is a single-celled, phototrophic dinoflagellate which lives around coastal marine environments . It's association with algal blooms forms red tides. A.tamarense is microscopic in size at about 25-46 micrometers in length per cell. It is often brown in color and has a spherical shape. The algal blooms caused by A. tamarense usually contains millions of these cells per liter of seawater. Each of these cells are toxic as they produce a neurotoxin that is highly toxic to organisms in that environment such as fish and shellfish. Higher animals such as humans, mammals and birds are affected through the food chain.

Genome structure

Alexandrium tamarense has a large amount of DNA compared to other eukaryotic organisms. It does not have nucleosomes. It consists of 144 chromosomes which are condensed in the nucleus until DNA replication. There is a total of 11,103 nucleotides that have been sequenced. Out of these nucleotides, 218 nucleotide are core and 10,885 are expressed sequence tags. Identification of genes that are responsible for toxin production has not yet been achieved.

Cell structure, metabolism & life cycle

A. tamarense manufacture its own food by using energy is obtains from sunlight, thus it is photoautotrophic. It is a primary producer and is a source of food for many other organisms. It moves from one position to another in water with the help of its two flagella. A. tamarense is said to be "armored" as it has a layer of cellulose that form plates known as thecae. A. tamarense is distinguished from other species in the same genus because of the presence of a ventral pore on the 1' plate, and the shape and size of its cells and thecal plates. A. tamarense reproduces mostly asexually by binary fission, but also sexually with anisogamous mating types. During sexual reproduction, gametes fuse producing a planozygote which becomes a resting cyst until environmental conditions can sustain germination. A. tamarense has the following Life cycle stages : motile vegetative cells, haploid gametes, diploid zygotes, resting cysts, and temporary cysts.

Ecology (including pathogenesis)

Although Alexandrium tamarense provides a food source for various organisms such as fish and shellfish, it is also toxic to these organisms, harming the environment and its inhabitants. Although some organisms are unaffected by these toxins, an accumulation of these toxins over can be very poisonous to higher organisms that feed on them. Consumption of infected organisms can cause different illnesses. Paralytic Shellfish toxins (PST) are caused by A. tamarense. Alexandrium tamarense can adapt quickly to different levels of nitrogen, thus it can survive in a constantly changing environment. Some of the strains of Alexandrium tamarense are not toxic. Different strains are often found in the same algal blooms caused by this species. However, some strains of Alexandrium tamarense produce very potent neurotoxins known as paralytic shellfish toxins (PSTs) and these toxins are more toxic in the resting cyst stage than in their motile stage.These toxins include gonyautoxins, neosaxitoxin and saxitoxin, and are harmful fish, marine mammals, birds,

and humans. It has not yet been discovered whether toxins produced by A. tamarense provide any health benefits to humans. However, toxins created by similar dinoflagellates have already shown some benefits, for example Gonyautoxin, a paralyzing phototoxin which aids in the healing of anal fissures.

Interesting feature

It produces toxins which although harmful to humans and other organisms, has a potential use in biotechnology for healing certain diseases.

References Don Anderson WHOI, Brad Butman USGS, Peter Franks SIO, Rocky Geyer WHOI, Ted Loder UNH, Rich Signell USGS, Bruce Keafer WHOI, Derek Fong WHOI, "Toxic "Red Tide" Populations in the Western Gulf of Maine: Sources, Transport, and Nutrient Environment Effects of toxic dinoflagellate Alexandrium tamarense on the energy budgets and growth of two marine bivalves, Siu-ChungLi, Wen-Xiong Wang,and Dennis P. H. Hsieh, Department of Biology, The Hong Kong University of Science and Technology (HKUST), Clear Water Bay, Hong Kong, People's Republic of China http://microbewiki.kenyon.edu/index.php/Alexandrium