International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Nurdels (Micro Plastics) Sources, Problems and Remedies

Dr. Parag Dalal

Assistant Professor School of Studies in Environment Management, Vikram University Ujjain

Abstract:

Let's understand that Nurdels are also known as Micro Plastics now let's see the range [4] before starting of this paper –

i. Plastic particle below 10 nano meter are called Nano Plastics.
ii. Plastics particle below 1 micro meter to 100 nano meters are called Sub-Micro Plastics.
iii. Plastics particle from 5 milli meter down to 1 micro meter are called Micro Plastics.

So we can say in easy terms that – **Micro plastic > Sub-Micro Plastic > Nano Plastic**

The micro plastic once ingested in human body causes gut blockages causing internal injuries, physical injuries also a great change in the oxygen level in human body. This reduced the energy levels in human body. In the growing ones micro plastic impacts the growth and also the reproduction of body affecting the whole ecosystem of our body. It's our duty towards nature and mankind to reduce Nurdels so to live happily with less pollution.

Fig. 01 – Micro plastics

Keywords:

Micro plastic, Sub-Micro Plastic, Nano Plastic, Nurdels, mankind, nature, oxygen level, human body

Introduction

Ingested but it's not been able to penetrate human skin. Secondly injections are made up of plastics too but they are sterilized. Still the Nurdels (Micro plastics) are ingested. Both Micro plastics and Nano plastics are been formed by breakdown of larger pieces of plastics. Now a day the products consumed by us also contains various micro and nano particles which get ingested in human body. Various cosmetic products include Micro plastics such as scrubs, face creams, shampoos, soaps, toothpaste, nail polish, foundation creams, lip balms and Lipsticks these are good sources of Micro plastic pollution.

Fig. 02 – Plastic from Fish Stomach (Net 1)

Why Worry?–

Frankly speaking we are not very clear till date how hazardous Micro plastic are for Environment. The biodiversity can absorb the micro plastics especially humans but this alone Micro plastic does not prove heavy toxicity. Still we have to take into account that such a small size particles will have the ability to absorb some tissues of the organism in them forming hazardous complex.

Fig. 03 – Plastic pollution ready to transform in micro plastics (Net 2)

The anthropogenic source of plastic each year worldwide is 500 Million tones. Out of this a significant amount is been absorbed in atmosphere as litter still it takes more than 500 Years to degrade[2].

This heavy use of plastics will lead to a massive increase in micro plastic pollution over the next two decades. Even though a material is very inert and nontoxic still if the concentration level of material reach a certain level it have many unforeseen effects on our health and environment both.

History of micro plastics –

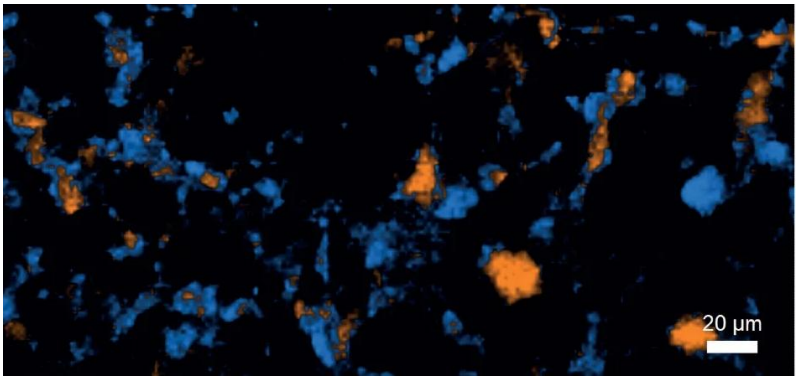

Fig. 04 – Micro plastics through Raman Microscopy (Net 3)

Earlier when some research is done they realized that only anthropogenic activity is responsible for micro plastic entering the environment. Various optical separation techniques were used to distinguish plastic from other particles of same sizes but these failed too quickly as in optical separation the particle size is smaller than even a milli meter and for such a small size it's very difficult to distinguish between sand particles, silica particles and micro plastic particles [3].

Than some German Scientists did a chemical analysis of around 4000 such particles from water but this analysis came too bad as only 6 particles out of 4000 particles were came to be micro plastic particles.

The water itself contains a large amount of organic particles, minerals and lime stone too, so it's very difficult to standardize an analysis or any method to compare accurately different particles with one another and segregate them.

This is all because still the concentration of micro plastics is low in Indian streams. This research is very much on an infant just born but still we can't wait and watch the pollution of micro plastics to be huge. We are still very much in trouble with plastic pollution worldwide. The rate of degradation of plastic is very-very slow and it is the duty of us Environmentalists to find out a suitable process to increase the rate as soon as possible. Still we can say that some strategies should be adopted to reduce the amount of plastic and micro plastics used by us so the production of pollution by us also reduces.

Methods Proposed to detect micro plastics –

We know that seeing and reading this heading many questions came to your mind. There are several methods we are using currently to analyze micro plastics. Here we combine thermal analysis with gas chromatography and mass spectroscopy to determine types of micro plastics and their quantity too, which may be present in given sample. These are good methods but cannot determine the particle sizes.

Now a days we must use spectroscopic method for detection and determination of shapes sizes and amount of micro plastic particles. In this we must apply an Infera red microscope which can analyze particle size up to 25 micro meters.

The Latest technology we must be using is Raman microscope which uses Molecular Optics Laser Examiner process. It is a non-destructive spectroscopic method to analyze and distinguish sustainable particle differences of synthetic polymers and natural substances and even sand, silica and quartz. By the use of this technology we have confided that micro plastics presence in Oceans are ingested in various fishes (See fig. 02). We have also found water flea in muscles in digest of small micro plastic particles and these gets deposited in stomach and liver muscles.

Fig. 05 – Micro plastics from stomach (Net 4)

We have to analyze the negative effects of different levels of micro plastic particles and even Nano plastic contamination. Especially in fresh water streams and oceans, in humans and other various aquatic species. As we can analyze that the micro plastic particles have some types of toxicity effects on health too [1].

Conclusion – Can we Ban Plastics? – The answer is **NO**. Why? – As because it is a versatile material used in daily living habits of us humans and has many advantages over other materials. It is our duty to reduce plastic products, which we use drastically so that littering of micro plastic particles reduces. We also should apply the reuse methods on various plastic materials to make them sustainable and the use of plastics is been reduced, reducing the disposal as in {4} paper we proposed the water balls that too homemade above the plastic bottles to reduce the waste. Some more methods like that we will try to develop to reduce the usage of plastics so that micro plastic particle pollution reduces too.

ReferencesCitations –

1. Dr. Parag Dalal"Disambiguation of Municipal solid waste to Syngas in Ujjain District by Plasma Gasification Technique", International Journal of Novel Research and Development (www.ijnrd.org), ISSN:2456-4184, Vol.8, Issue 4, page no.b359-b364, April-2023, Available :http://www.ijnrd.org/papers/IJNRD2304139.pdf
2. Dr. Parag Dalal. "Physico-chemical parameters of municipal solid waste analysis and disposal techniques at Ujjain city", International Journal of Engineering Development and Research (IJEDR), ISSN:2321-9939, Vol.11, Issue 1, pp.67-72, January 2023, URL :http://www.ijedr.org/papers/IJEDR2301009.pdf
3. Dr. Parag Dalal. "Direct Sludge Blanket Treatment of Cluster Industries in a Common Effluent Treatment Plant", International Journal of Emerging Technologies and Innovative Research (www.jetir.org), ISSN:2349-5162, Vol.10, Issue 3, page no.d401-d404, March-2023, Available :http://www.jetir.org/papers/JETIR2303349.pdf
4. Dr. Parag Dalal. "STOP PLASTIC BOTTLE POLLUTION WITH HOMEMADE EDIBLE WATER", International Journal of Current Science (IJCSPUB), ISSN:2250-1770, Vol.12, Issue 4, pp.1-4, October 2022, URL : http://www.ijcspub.org/IJCSP22D1001

References Internet –

Net 1. https://www.scmp.com/news/world/article/1963551/some-fish-prefer-eat-tiny-bits-plastic-dire-consequences-pollution-study
Net 2. https://lloydslist.maritimeintelligence.informa.com/LL1139949/Shipping-lines-urged-to-stop-all-plastic-waste-exports
Net 3. https://www.azom.com/article.aspx?ArticleID=19310
Net 4. https://www.seeker.com/health/microplastics-invade-the-human-body

Other Author References on topic –

5. Dalal P. Sustainable development of Holy City Ujjain, India by Solid Waste Management Journal of Industrial Pollution control Vol. 21(2) 2005 127–132 ISSN 0970–2083
6. Dalal P. Sustainable development of Ujjain by Solid Waste Management Our Earth Vol. 3(2) 2006 5–11 ISSN 2249–3832
7. Dalal P. et.al. Shipra river conservation by sewage treatment Pollution Research Journal Enviromedia Vol. 28(4) 2009 731–738 ISSN 0257–8050
8. Dalal P., Some Studies on Physico–Chemical parameters and develop an environment management model for river purification in Ujjain City Our Earth Vol. 6(1) 2009 8–13 ISSN 2249–3832

9. Dalal P., Municipal Solid Waste Management by Vermicomposting International Journal of Science and Nature Vol. 3(4) 2012 883–885 ISSN 2229–6441
10. Dalal P., Management of Infectious Bio–medical Waste of Ujjain City International Journal of Advance Research Vol 1(2) 2013 52–58 ISSN 2320–5407
11. Dalal P. et.al., Proposal of On–Site Composting of MUNICIPAL SOLID WASTE in Ujjain City International Journal of Chemical Studies Vol 5(3) 2017 89–92 ISSN 2321– 4902
12. Dalal P., Systematic Approach to Integrated Solid Waste Management System by Green Cleaning of All Municipal Area of City Ujjain, India International Journal of Development Research Vol. 07(05), 2017 12752–12753 ISSN 2230–9926
13. Dalal P. et.al., Bio–Medical waste management of Ujjain city by on–site treatment of bio–degradable infectious waste by low cost technology International Journal of Chemical Studies Vol 5(4) 2017 01–06 ISSN 2321– 4902
14. Dalal P., Proposal Of Multi–Hazardous Wastes For On–Site Disambiguation Management In Ujjain, India International Journal of Applied Biology and Pharmaceutical Technology Vol 8(3) 2017 29–35 ISSN 0976–4550
15. Dalal P., Vermi–Digestion of Municipal Solid Waste by Red Wigglers to Organic Fertilizer IRA–International Journal of Technology & Engineering Vol 08(01) 2017 01–04 ISSN 2455–4480
16. Dalal P., Hospital Waste Characterization and Proposal of Management Technique for Onsite Disposal in Ujjain City International Journal of Current Research in Multidisciplinary (IJCRM) Vol. 2(8) 08–15 ISSN: 2456–0979
17. Dalal P. et.al., Solid waste Management: A Review International Journal of Applied Research Vol 3(5) 2017 35–39 ISSN 2394–5869
18. Dalal P. et.al., Biomedical Waste Management in Hospitals – A Review IRA–International Journal of Technology & Engineering Vol. 07,(02) 2017 10–16 ISSN 2455–4480
19. Dalal P., Municipal solid waste management of Ujjain city by on site vermicomposting technique: A review International Journal of Applied Research Vol 3(6) 2017 106–111 ISSN 2394–5869
20. Dalal P., Bio-Medical waste management of Ujjain city by on-site treatment of bio-degradable infectious waste by low cost technology International Journal of Chemical Studies; 5(4) 2017 01-06 ISSN: 2349–8528
21. Dalal P., Strong biomedical waste management in Ujjain, India under COVID-19 pandemic: Challenges and arrangements with crowd World Journal of Advanced Pharmaceutical and Medical Research, 2022, 02(01), 008–014 ISSN: 1053-3460
22. Dalal P., Low Cost Disposal of EPS & XPS With Acetone International Journal of Enhanced Research in Science, Technology & Engineering 2022 Vol. 11(8), 49-52 ISSN: 2319-7463
23. Dalal P., Green Cleaning of Garbage to Compost by Eisenia Fetida International Journal Of Innovative Research In Technology 2022 Volume 9(4), 17-20 ISSN: 2349-6002