MicPlaROB

MICROPLASTICS: TOMORROW'S MACRO PROBLEM

WEBINAR 1:
FROM MACROPLASTICS TO MICROPLASTICS – let's get to know them closely

Senior Lect. Anja Bubik, PhD
VŠVO

VISOKA ŠOLA za varstvo okolja
DERMOL digital business solutions
CSIG Osservatorio Centro Studi Informatica Giuridica Taranto
Centre for Legal Informatics Studies – Taranto Observatory
Financira Evropska unija

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MicPlaPROB CHALLENGES

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NUMBERS ...

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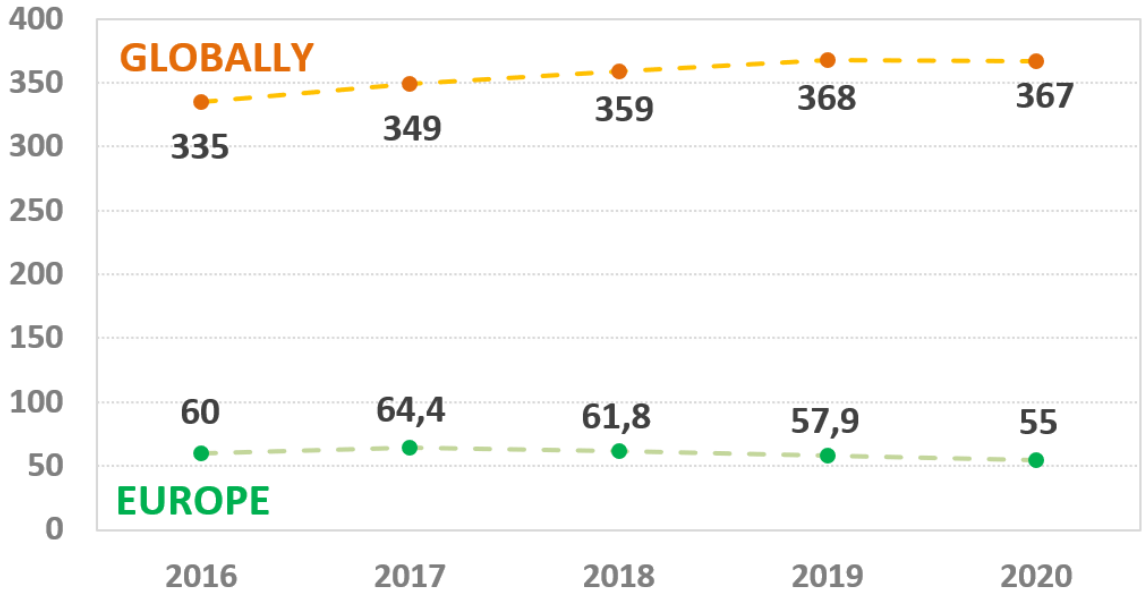
- since 1950... **GLOBAL PLASTICS PRODUCTION = 8.3 billion tons**
- >**300 mil tons** of plastics are produced annually for different applications *(IUCN, Plastic Europe)*
  - 2019: **368 mil tons**
  - 2020: **367 mil tons** *(↓ due to Covid-19 crisis)*



(IUCN, PlasticEurope)

NUMBERS ...

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- most plastics are intended for packaging (EU= 40%)
- **50%** of all plastics are polyolefins (PP, PE)
- about **two thirds** of all plastics produced have been released into the environment, where it continues to affect ecosystems (accumulation, fragmentation, weathering ...)
- only **9%** of plastics produced so far have been recycled *(EU, 2020)*
- about **8 mill tons** of plastic end up in the oceans annually and account for up to 80% of all marine litter *(IUCN)*

EUROPE

Plastics demand

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	2009	2019	2020	
		↑ 12,6 %	↓ 3,2 %	
TOTAL	**45,0 mill tons**	**50,7 mill tons**	**49,1 mill tons**	
PACKAGING	40,1 %	39,6 %	40,5 %	
BUILDINGS and CONSTRUCTIONS	20,4 %	20,4 %	20,4 %	
AUTOMOTIVE	7,0 %	9,6 %	8,8 %	
ELECTRICAL and ELECTRONIC	5,6 %	6,2 %	6,2%	
HOUSEHOLD, LEISURE and SPORTS	-	4,1 %	4,2 %	
AGRICULTURE	-	3,4 %	3,2 %	
OTHERS (mechanical engineering, furniture, medicine, etc.)	26,7 %	16,7 % (24,2 %)	16,7% (24,1 %)	
global POPULATION	6,84 billion	7,71 billion	7,79 billion	**↑ 1,03 %**
EU POPULATION	0,73 billion	0,75 billion	0,75 billion	**↑ 0,61 %**
		↑ 15,5 %		
		↑ 2,7 %		

Viri: PlasticEurope
https://www.worldometers.info/

EUROPE

Plastics demand by resin types

	2009	2019	2020
PP	19 %	19,4 %	19,7 %
PE-LD/PE-LLD	17 %	17,4 %	17,4 %
PE-HD/PE-MD	12 %	12,4 %	12,9 %
PVC	11 %	10 %	9,6 %
PUR	7 %	7,9 %	7,8 %
PET	8 %	7,9 %	8,4 %
PS+EPS	8 %	6,2 %	6,1 %
others	18 %	18,8 %	18,1 %

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THE MOST COMMONLY USED POLYMERS ARE

POLYOLEFINS (50 %)

polyethylene (PE)
polypropylene (PP)

Vir: PlasticEurope

CHALLENGES

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Eurythenes plasticus (2020)

CHALLENGES

RECOGNIZE

⬇

ASSES

⬇

REDUCE

⬇

BE AWARE

⬇

UNDERSTAND

Eurythenes plasticus (2020)

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WEBINAR CONTENTS

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1. FROM MACROPLASTICS TO MICROPLASCS – let's get to know them closely
2. MICROPLASTICS IN OUR HOUSEHOLDS
3. MICROPLASTICS IN URBAN ENVIRONMENT
4. PLASTIC WASTE
5. ENVIRONMENTAL FATE OF MICROPLASTICS - Impacts on different ecosystems

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- PART I: **POLYMER MATERIALS** *(Associate Professor Irena Pulko, PhD, FTPO, Slovenj Gradec)*
  - development of polymer materials and areas of their application
  - polymer formation
  - classification of polymer materials
  - biodegradation
  - biopolymers
- PART II: **MICROPLASTICS ALPHABET** *(Senior Lecturer, Anja Bubik, PhD, VŠVO, Velenje)*
  - definition of microplastics and basic concepts
  - announcement of further webinars and discussion

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- INTRODUCTION: **MicPraPROB CHALLENGES**

  (Senior Lecturer, Anja Bubik, PhD, VŠVO, Velenje)

- PART I: **POLYMER MATERIALS**

  (Associate Professor Irena Pulko, PhD, FTPO, Slovenj Gradec)

- **PART II: MICROPLASTICS ALPHABET**

  (Senior Lecturer, Anja Bubik, PhD, VŠVO, Velenje)

- CONCLUSIONS