

Dan otvorenih vrata Znanstveno-istraživačkog centra za tekstil, 25. rujna 2020.



# PROBLEMATIKA MIKROPLASTIKE U EFLUENTIMA OD PROCESA PRANJA

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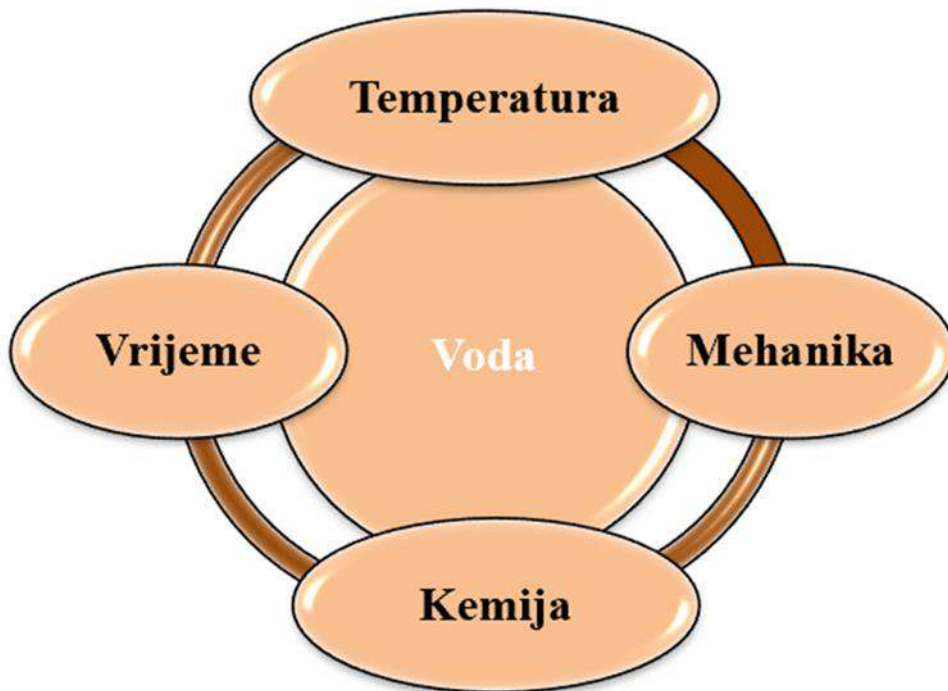
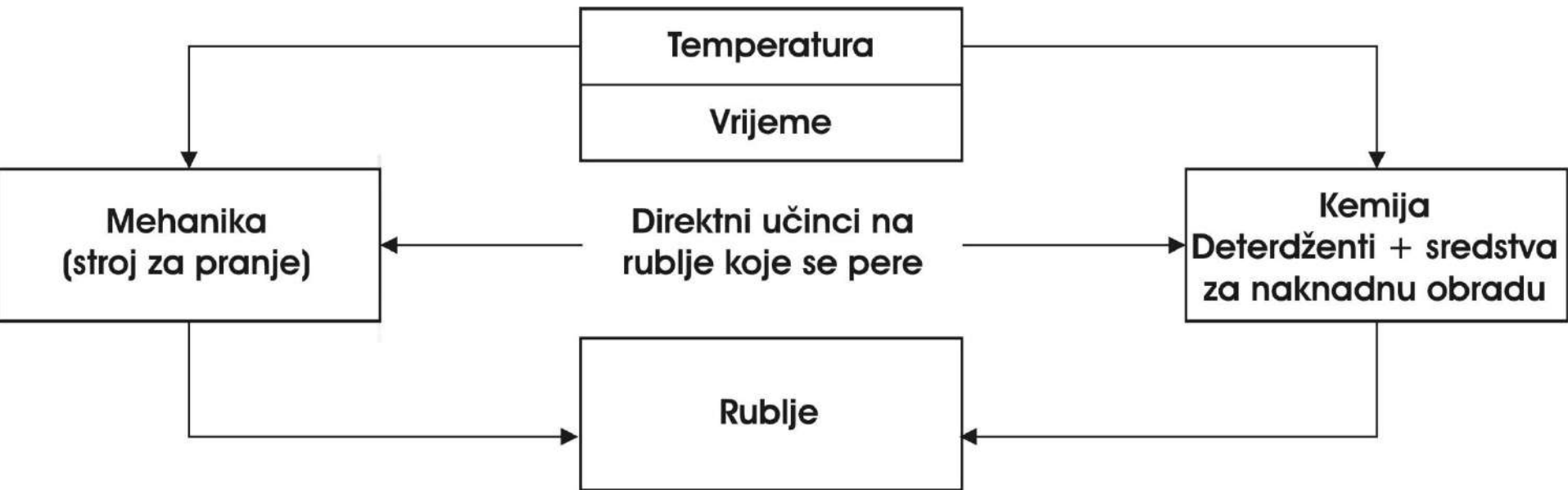
SVEUČILIŠTE U ZAGREBU

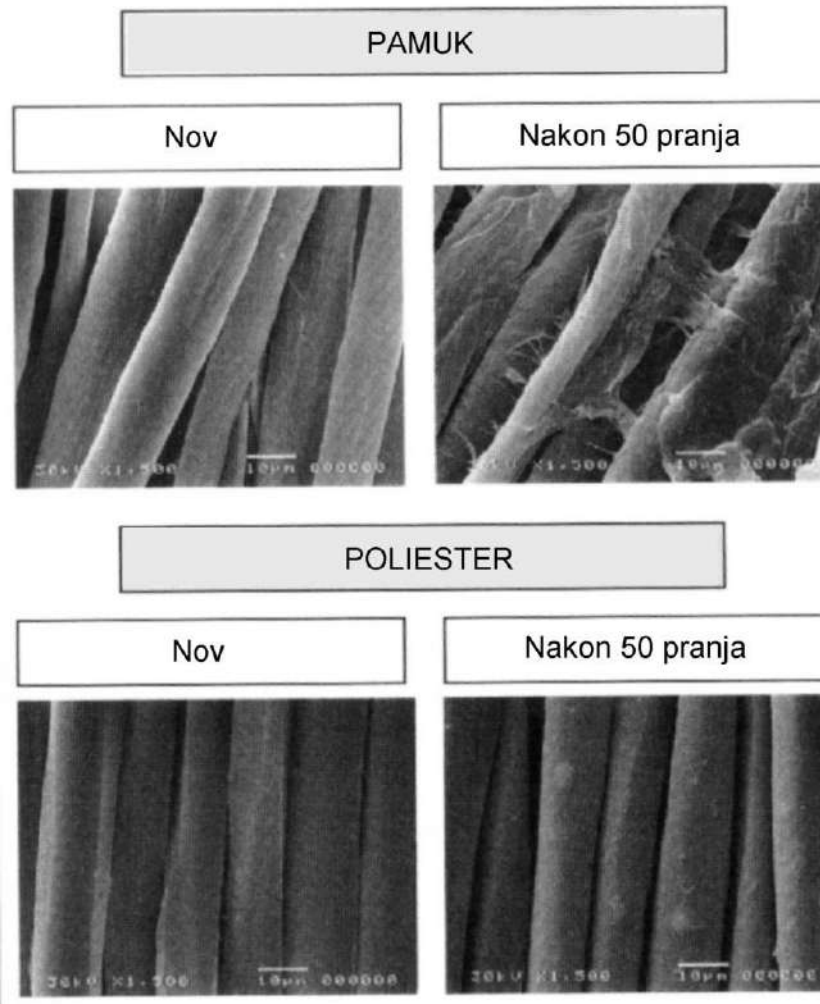


Tekstilno-tehnološki fakultet



<sup>1</sup>Prehrambeno-biotehnološki fakultet



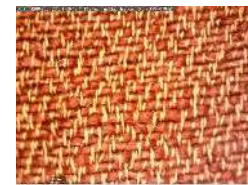


## **SEM slike pamučnih i PES tkanina prije i nakon 50 ciklusa pranja**

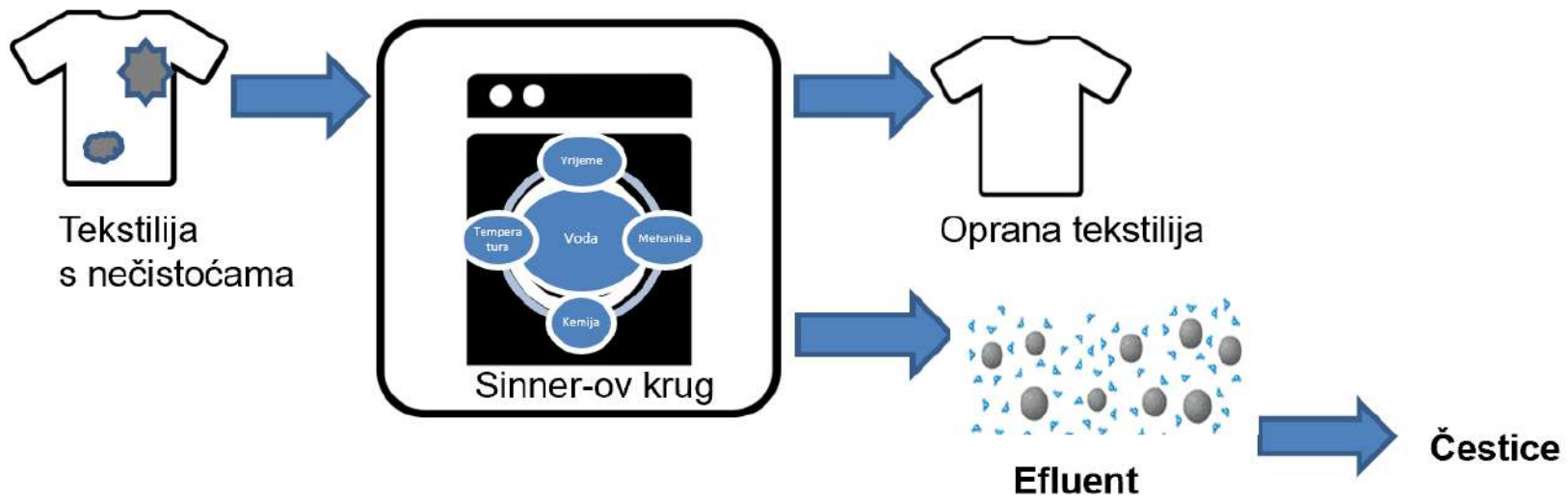
*Izvor: J. Kurz: Laundering in the Prevention of Skin Infections, chapter in book Textiles and the Skin, Karger, 2003*

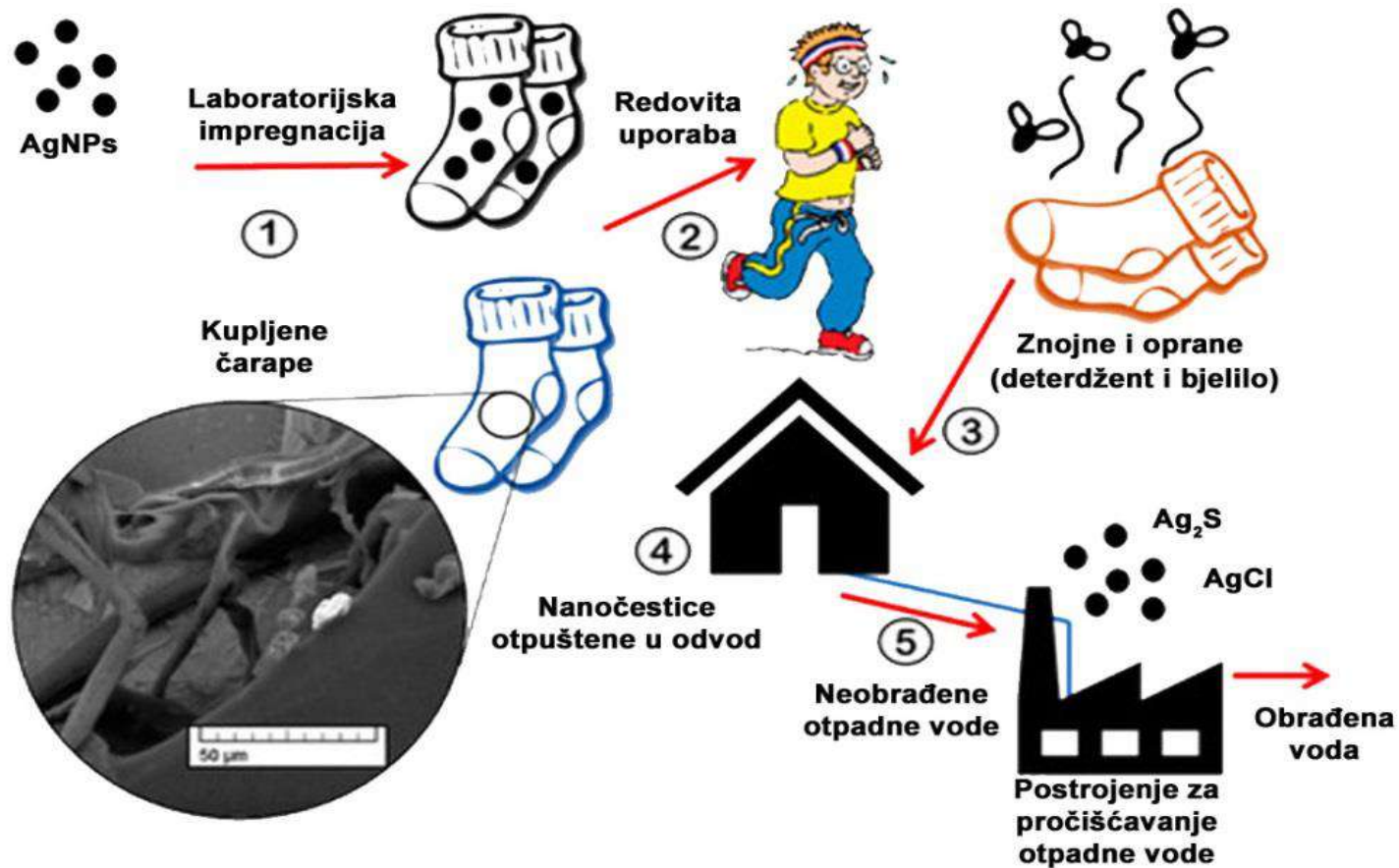


1 2 3 4



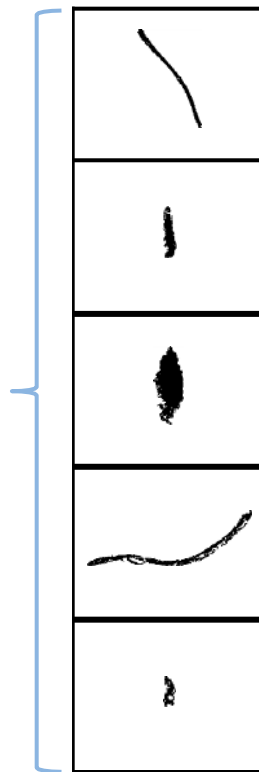
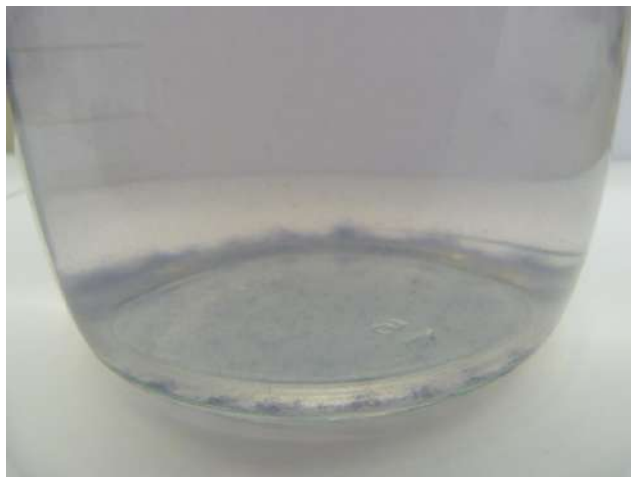
Obrada u vodi





Transformacija otpuštenih nano-čestica srebra (AgNPs): sinteza - funkcionalizacija tekstila – okoliš

Izvor: S. Mohan et al: Morphological Transformation of Silver Nanoparticles from Commercial Products: Modeling from Product Incorporation, Weathering through Use Scenarios and Leaching into Wastewater, *Nanomaterials* (2019) 9, 1258

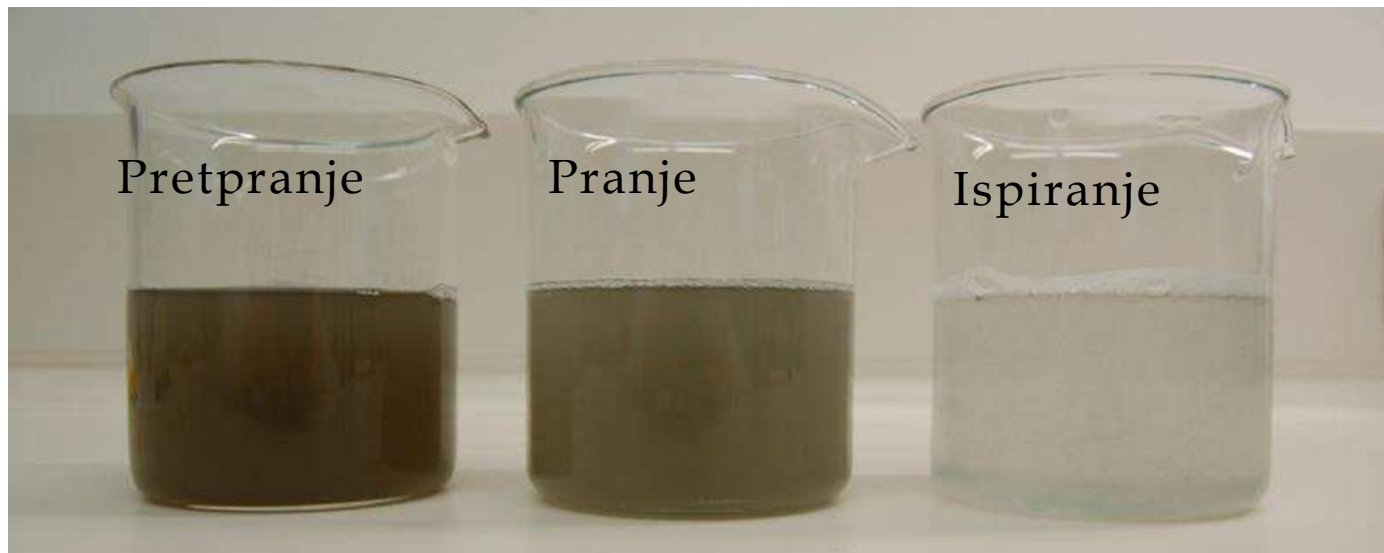
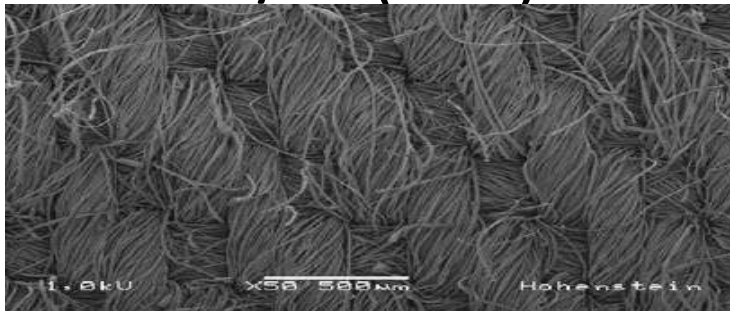


čestice

vlakna



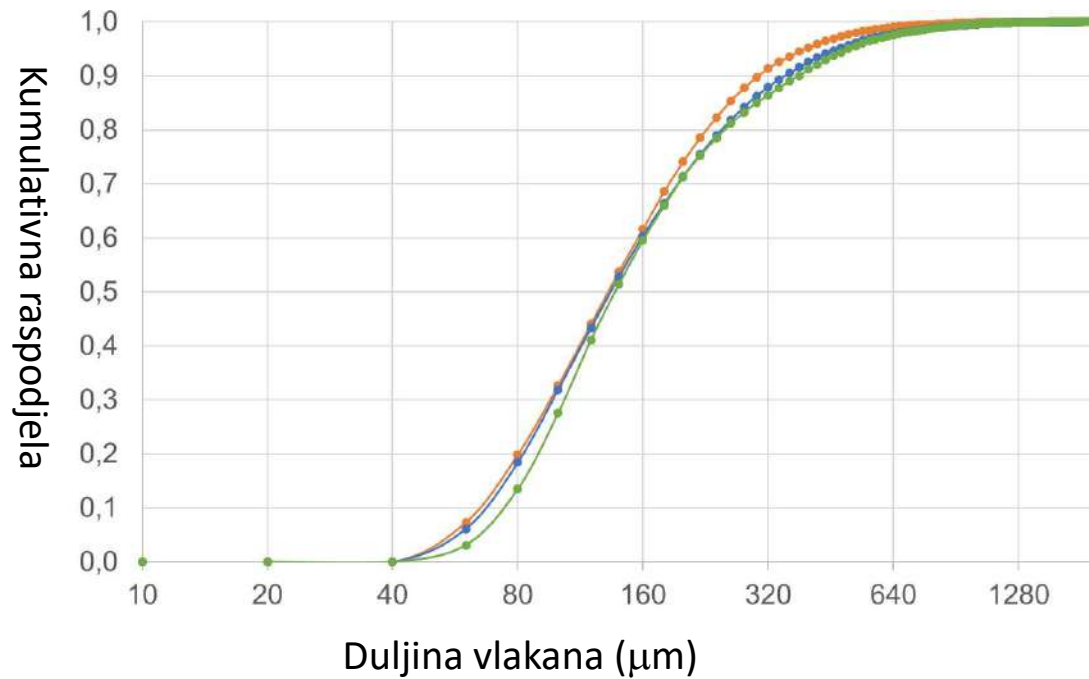
## Pamuk/PES (50:50)



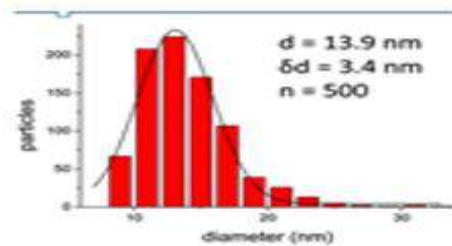
### sastav vlakana u efluentu (%)

	<b>PRETPRANJE</b>	<b>PRANJE</b>	<b>ISPIRANJE</b>
<b>Pamuk</b>	<b>89±1%</b>	<b>86±4</b>	<b>90±3</b>
<b>PES</b>	<b>11±1%</b>	<b>14±4</b>	<b>10±3</b>





## Laserska difrakcija



## Raspodjela veličina čestica

## Analiza efluenata

- ❖ precizne i reproducibilne metode karakterizacije
  - ❖ tekstilije definiranih svojstava
  - ❖ definiran protokol pranja
  - ❖ analiza stupnja kontaminacije
- Multivarijantna analiza (MVA) – sličnosti i razlike pojedinih sustava

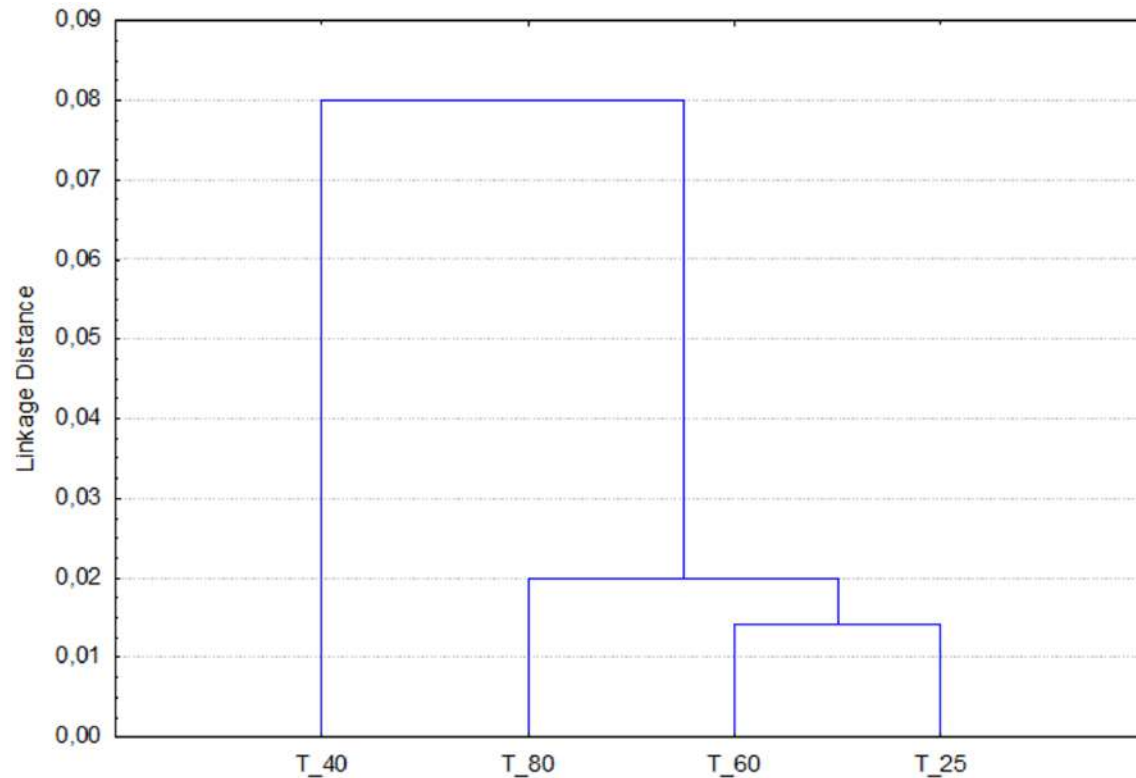
*Dris, R. et al: A first overview of textile fibres, including microplastics in indoor and outdoor environments, Environmental Pollution* **221**. (2017), pp. 453-458, ISSN: 0269-7491

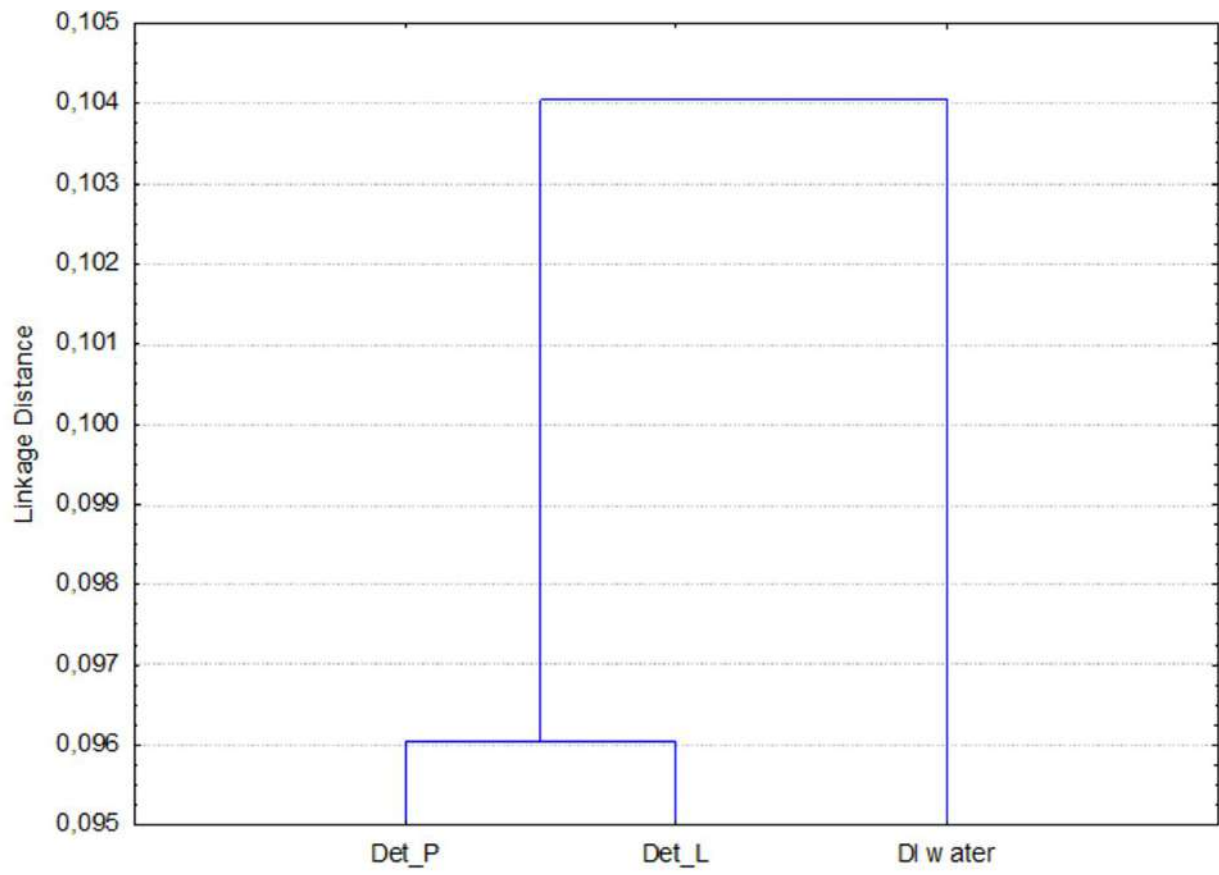
100 % PES plativo,  $\mu\text{g}$  vlakna / g pletiva  
Temperatura, ciklus, sredstvo

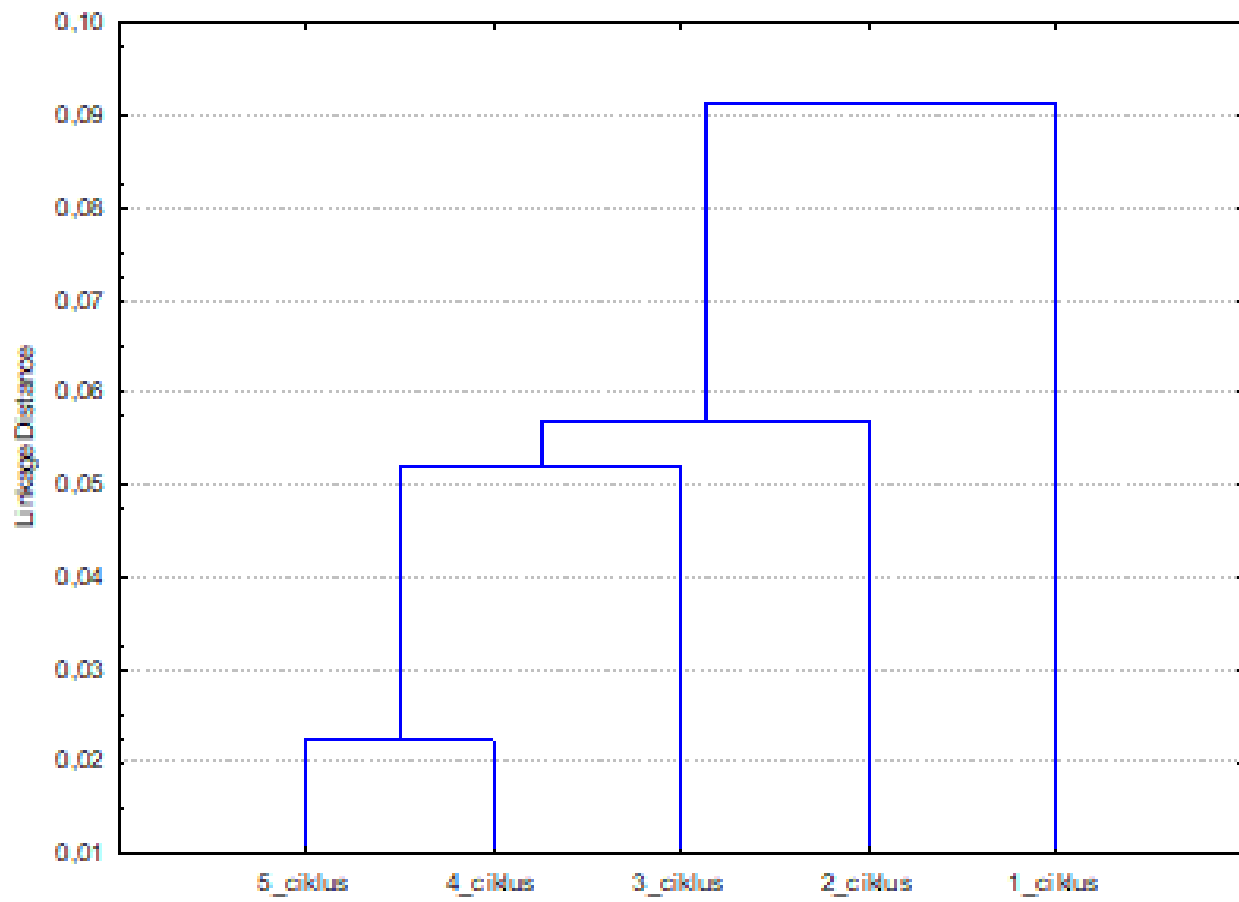


Podaci gravimetrijske analize - tablično

MVA







Hvala na pozornosti

