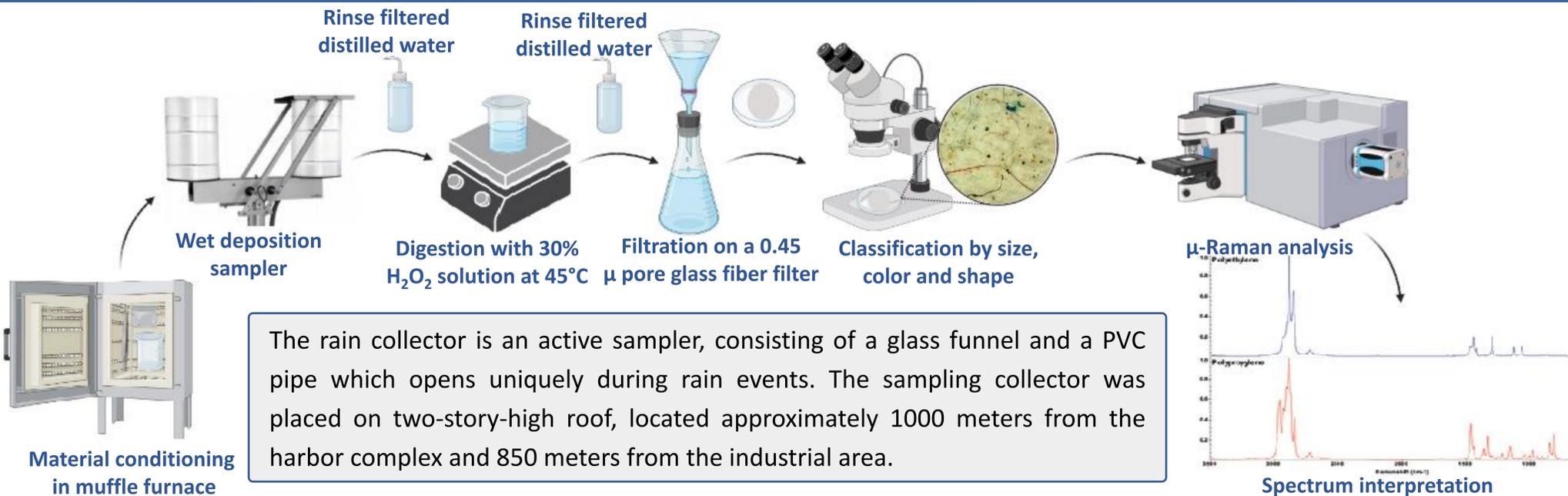


## INTRODUCTION

The presence of atmospheric microplastics (MPs) has been demonstrated in urban and remote areas around the world. It is estimated that the wind and the rains have the capacity to transport microplastics long distances, considered an important vector that could lead to the deposition of MPs. Particularly, in Bahía Blanca MPs have been recorded in coastal sediments (Álvarez, 2020), inland waters (Alfonso et al., 2020), estuarine waters (Ronda et al., 2019) and even in organisms (Arias et al. al., 2019). However, attention to the atmosphere is still considered incipient globally. The objective of the present work was to evaluate the presence of airborne microplastics deposited within the rain in the city of Bahía Blanca in the SW of Buenos Aires, Argentina.

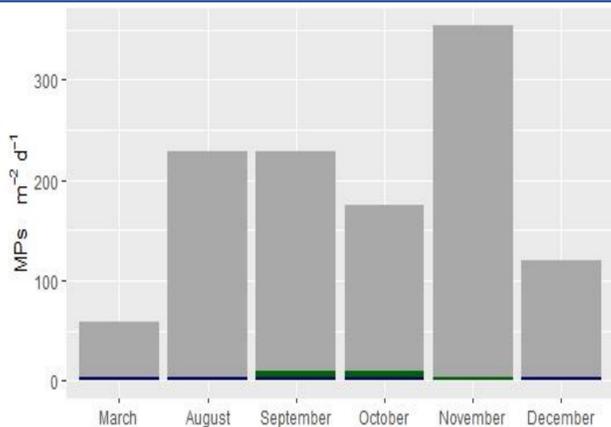
## METHODOLOGY



The rain collector is an active sampler, consisting of a glass funnel and a PVC pipe which opens uniquely during rain events. The sampling collector was placed on two-story-high roof, located approximately 1000 meters from the harbor complex and 850 meters from the industrial area.

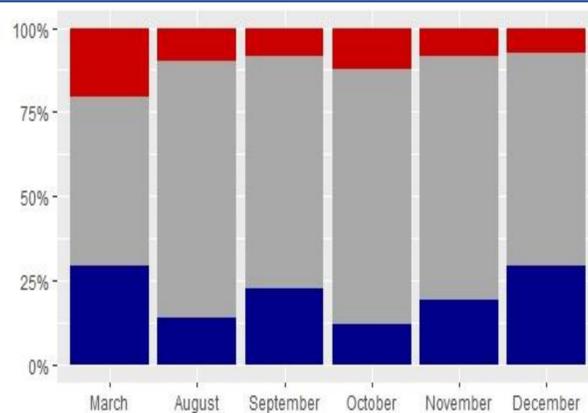
## RESULTS

MPs were found in all the atmospheric fallout samples. The deposition fluxes of MPs ranged from 59 (November) to 353 (March) MPs m<sup>-2</sup>d<sup>-1</sup>.



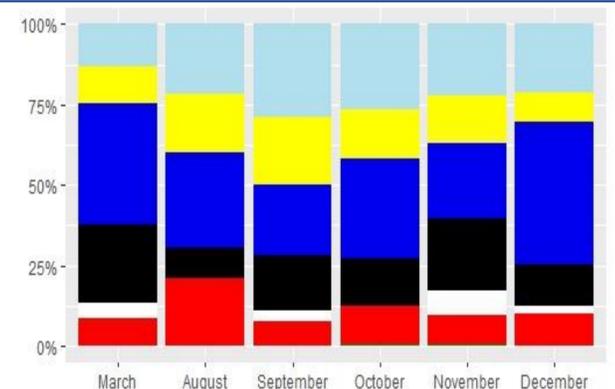
Form: Fiber (grey), Film (green), Fragment (blue)

The dominant form found was fiber representing 97% of the total followed by fragments (1.57%) and by films (1.12%).



Size (mm): 0,01 - 0,1 (red), 0,1 - 1,00 (grey), 1,00 - 5,00 (blue)

MPs sizes were ranged between 0.01 mm to 3.83 mm. Most of the MPs presented sizes smaller than 1 mm (85.84%).



Color: Light blue (light blue), Blue (blue), Transparent (white), Others (green), Yellow (yellow), Black (black), Red (red)

Color blue predominates (31.5%) followed by light blue (26%) and yellow (16%)

The analysis of μ-Raman spectra confirmed the presence of PS, PE, PET, PEVA fibers and provided evidence of fibers containing industrial additives as indigo dye. While a dominance of small plastic microfibers was found, considering chemical composition, shape and colors, textile was pointed as a probable major source for the area.

## CONCLUSION

The main sources of fibers comes from the degradation of synthetic textiles present in clothing that may be shed and released as clothing wears out or during domestic laundry washing.

