

## Analysis of Aqueous Mobile Phase Sample Preparation and Filtration Steps in Cannabis Analytical Testing

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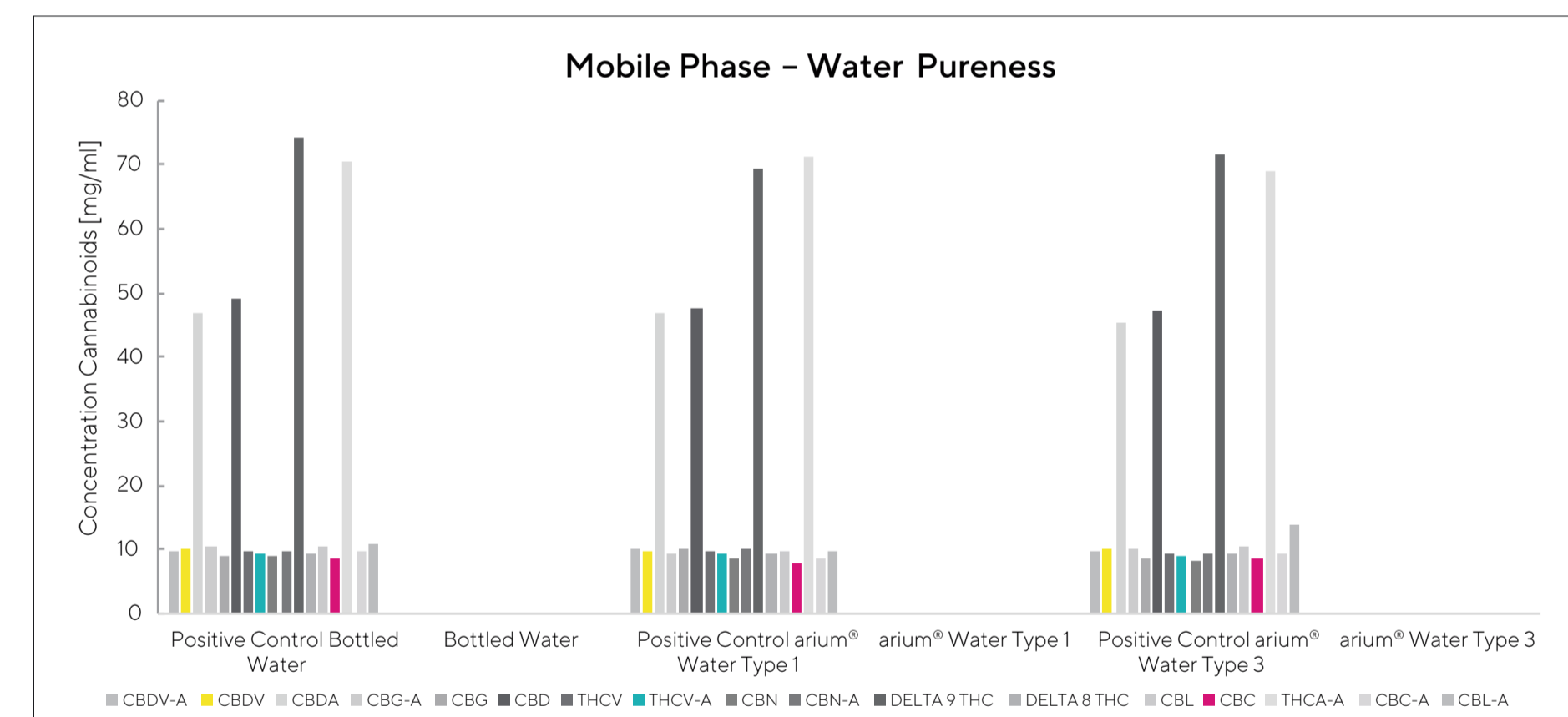
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### Abstract

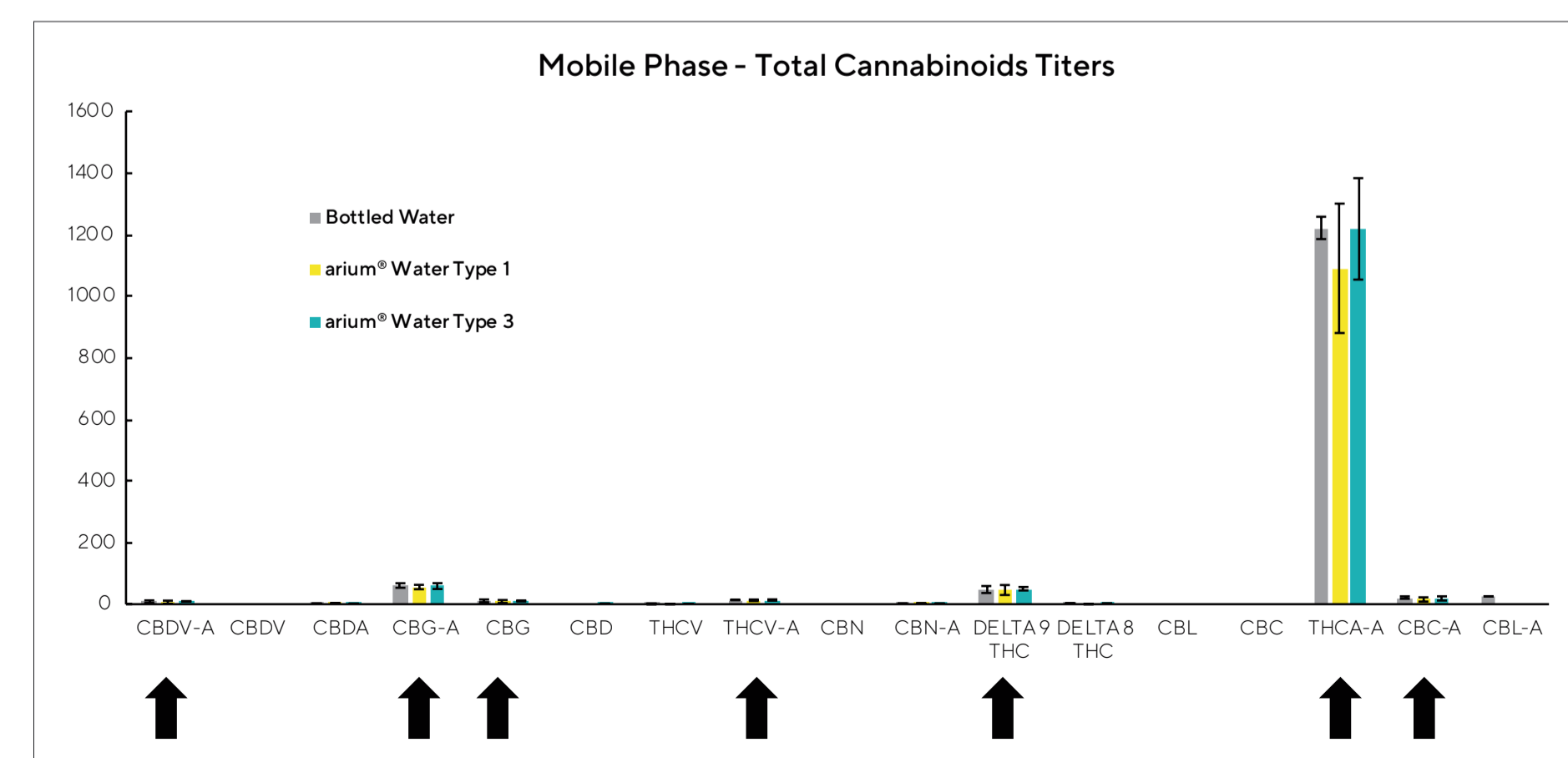
The two-fold objective of this study was to 1) demonstrate that aqueous mobile phase preparations from purchased lab grade bottled water yielded comparable results to in-house prepared water (Sartorius Arium purified water Type 1 and Type 3) and that 2) using filters (Sartorius Minisart® RC, SRP, NY & NY Plus, all 0.2 µm) yielded comparable results to unfiltered specimens under the same mobile phase conditions.

### 1. Water for Mobile Phase: Purity of Diverse Water Types



All water types investigated and used as mobile phase are free of cannabinoids interferences.

### 2. Water for Mobile Phase: Total Cannabinoids Titrers

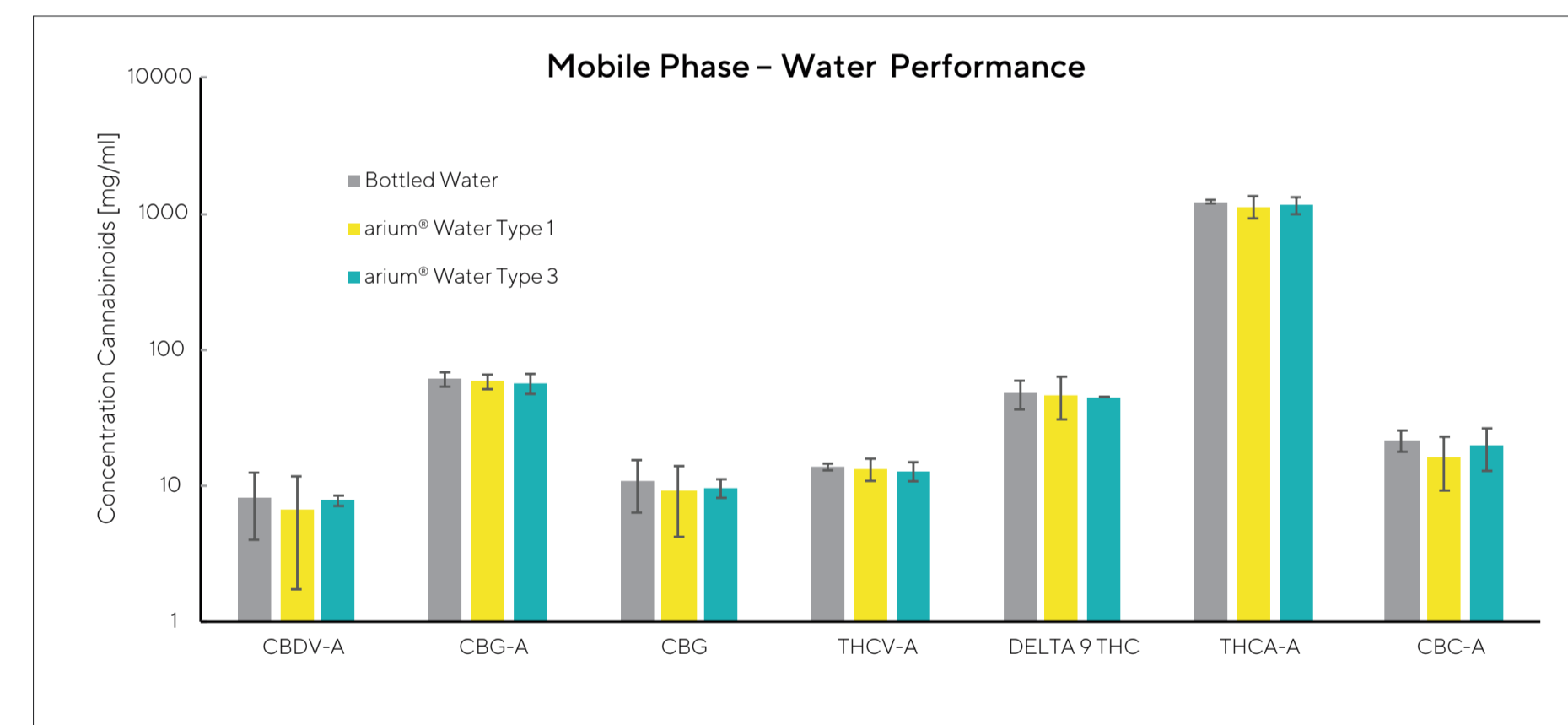


For comparison of water types (1. Water for Mobile Phase: Purity of Diverse Water Types) only analytes considered with values above limit of quantification (LOQ).

A blank matrix specimen (homogenized nettle leaf (*Urtica dioica*)) was spiked for calibrators and controls and analyzed without cannabinoid spikes (blanks, n=5) using designated mobile phases for each water type to assess any specimen affects from the water.

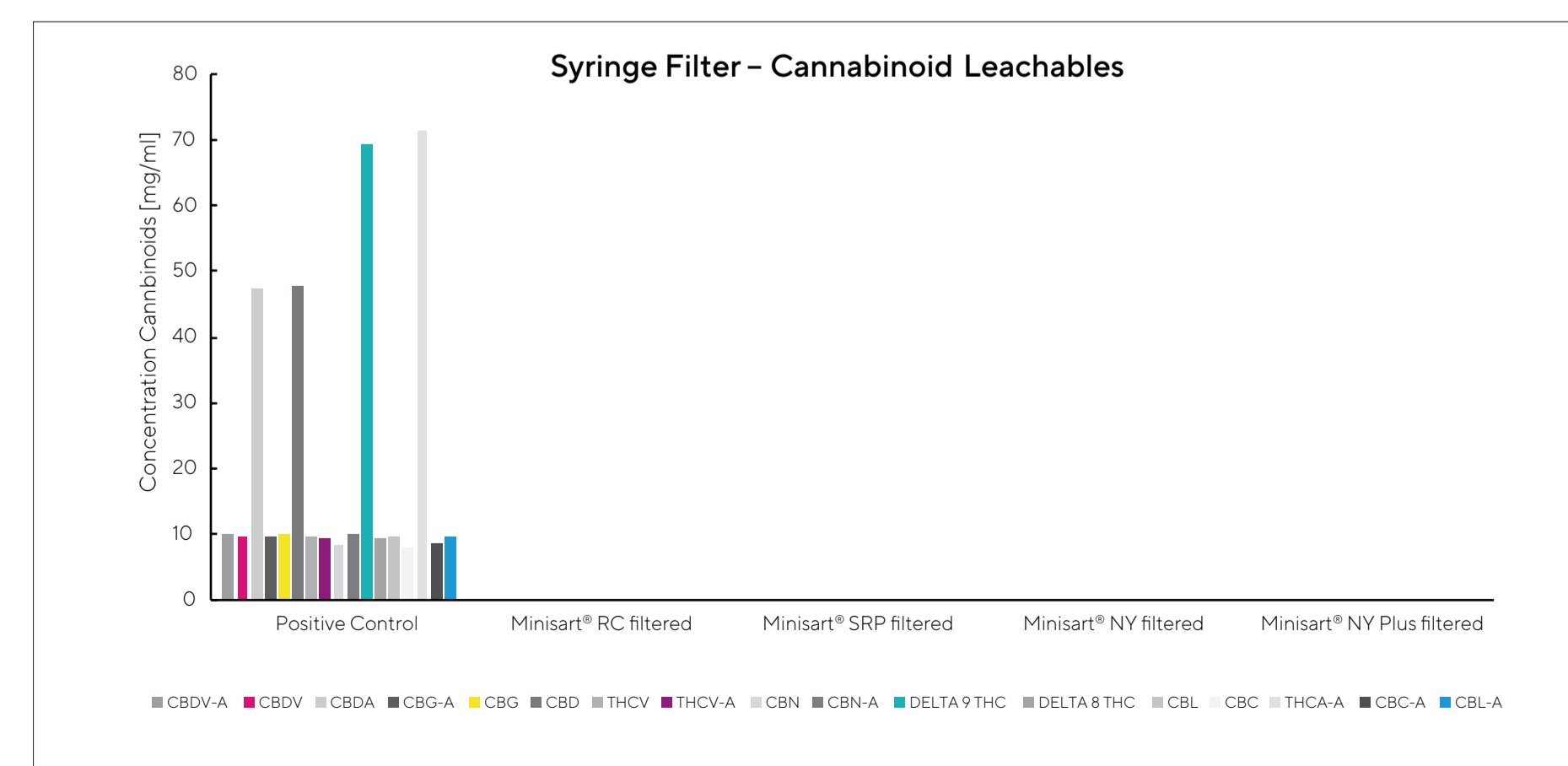
In addition, a true cannabis specimen was filtered using each of the four different filter types (Sartorius Minisart® RC, SRP, NY & NY Plus, all 0.2 µm) and analyzed (n=5) using the corresponding calibration curves and controls.

### 3. Water for Mobile Phase: Impact of Water Type on Cannabinoid Quantities



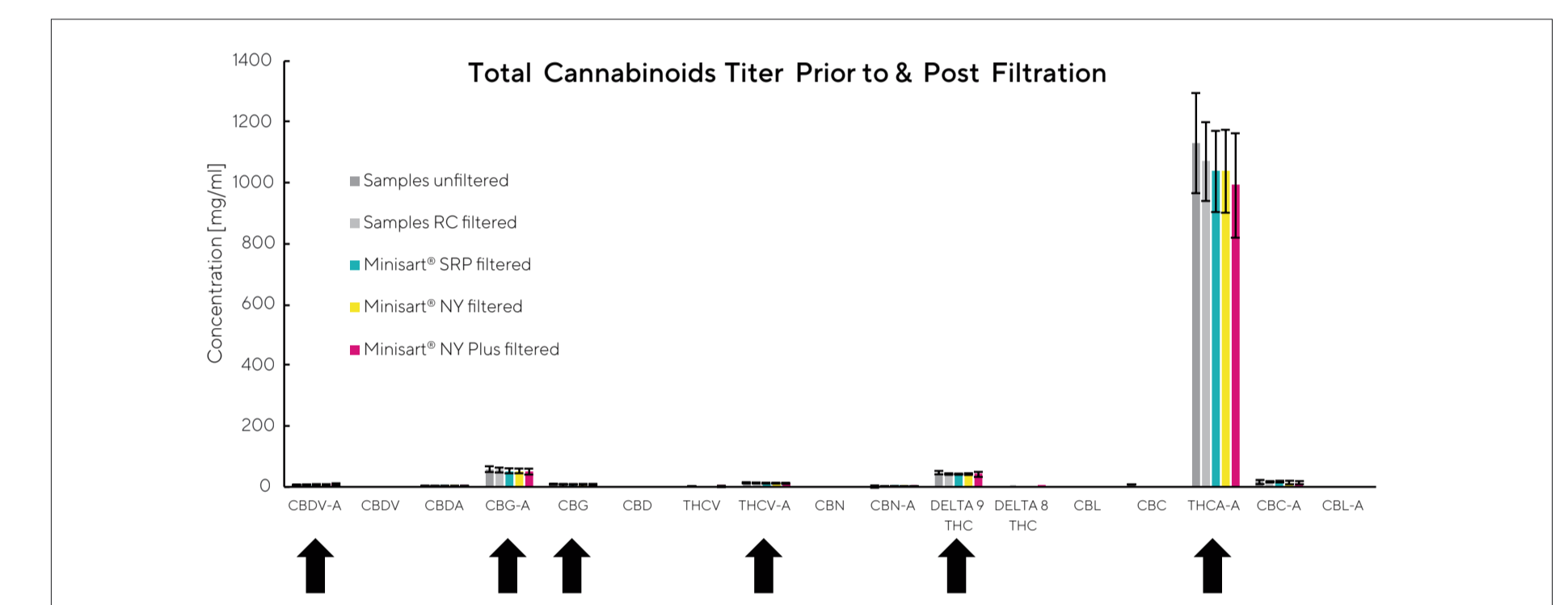
Investigated water types used as mobile phase showed no differences regarding analyte quantities.

### 4. Syringe Filtration: Leachables



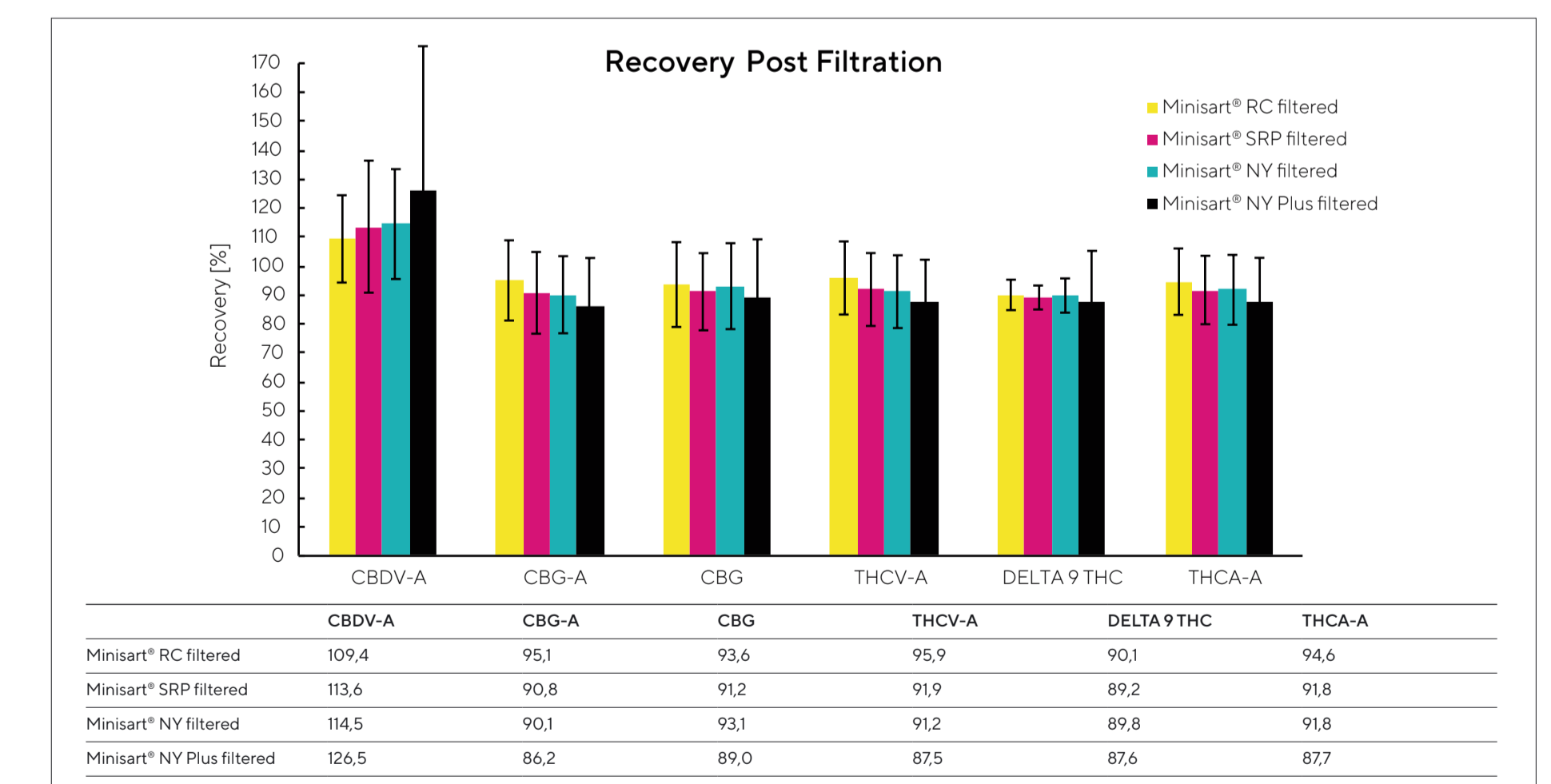
By using Minisart® syringe filter no interfering cannabinoids leachables have been found.

### 5. Syringe Filtration: Total Titrers of Cannabinoids



For calculation of recovery (4. Syringe Filtration: Leachables) only analytes considered with values above limit of quantification (LOQ)

### 6. Syringe Filtration: Recovery of Cannabinoids



All syringe filter show no significant depletion of analytes by filtration. No significant differences between syringe filter types have been observed.

### Conclusion

1. Water types and sources did not affect the filtered or unfiltered specimen quantitation.
2. The various filter types did not have a significant impact on the obtained concentrations of the true cannabis specimen replicates compared to the unfiltered replicates.
3. When water types and sources do not affect the filtered or unfiltered quantitation, it would be advisable to select an aqueous mobile phase solution that has the lowest long term total cost of operation, best use of available lab storage space and the smallest environmental impact – namely an in-house prepared water system. This approach ensures accurate and reproducible results, while optimizing cost savings and environmental impacts.