

1 Supplementary Information

2

3 **Raman microspectroscopic analysis of fibers in**
4 **beverages**

5

6 Alexandra C. Wiesheu, Philipp M. Anger, Thomas Baumann, Reinhard Niessner,
7 Natalia P. Ivleva*

8 Institute of Hydrochemistry, Chair for Analytical Chemistry, Technical University of
9 Munich, Munich, Germany

10 *corresponding author: Natalia P. Ivleva, Institute of Hydrochemistry, Chair for
11 Analytical Chemistry, Technical University of Munich, Marchioninstr. 17, 81377
12 Munich, Germany, natalia.ivleva@ch.tum.de

13 Keywords: Raman microspectroscopy, beverages, beer, mineral water, synthetic
14 fibers,

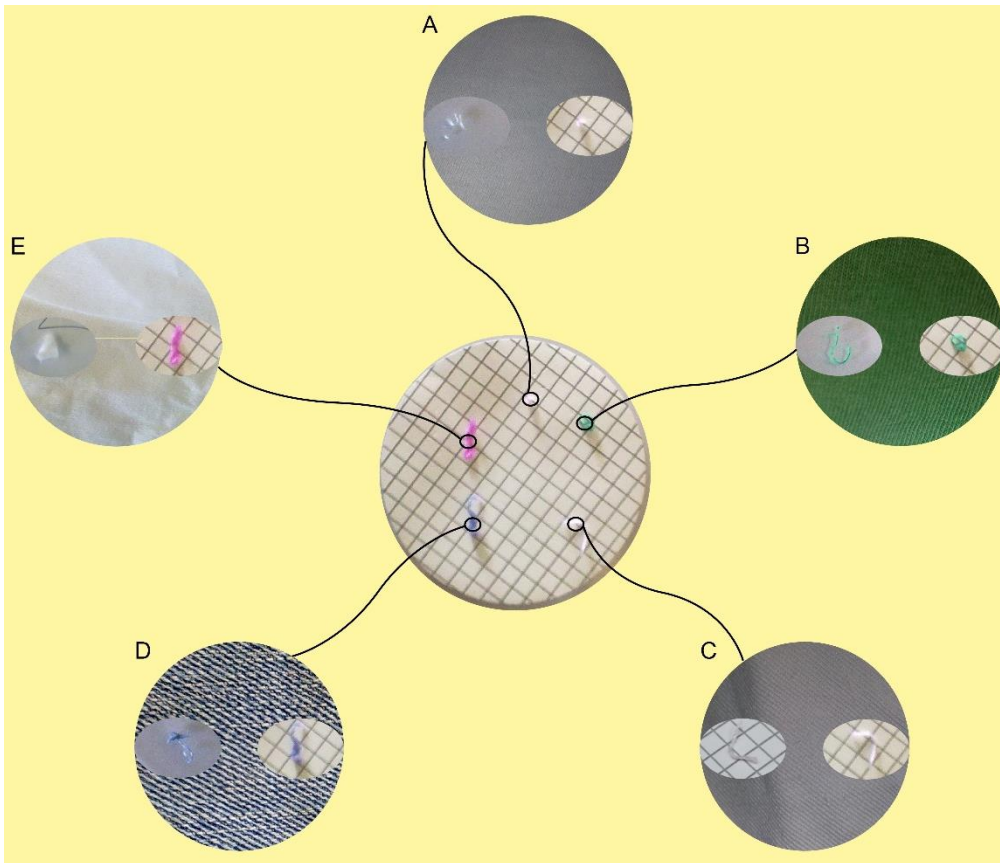
15

16 **Staining of different cellulose fibers with Rose Bengal**

17

18 We followed the staining method described by Liebezeit and Liebezeit ¹. Shortly, the
19 wet filters were each covered with 6 mL Rose Bengal solution (4,5,6,7-tetrachloro-
20 2',4',5',7'-tetraiodofluorescein, 200 mg/L) for 5 min. Afterwards the filter were
21 thoroughly rinsed with filtered water and dried overnight. Five different 100% cellulose
22 fibers were examined: tissue fibers (Carl Roth GmbH & Co KG, Karlsruhe/DE), blue
23 jeans (H&M, Stockholm/SE), a green t-shirt (fruit of the loom, Bowling Green,
24 Kentucky/US), a white t-shirt (etirel, Heilbronn/DE) and a lab coat (Laborhandel

25 Krumpholz, Selters/DE). Only the tissue fibers showed staining (see figure below),
26 which suggest that this method is not appropriate for fiber discrimination and
27 identification. Therefore, another reliable method e.g. Raman microspectroscopy has
28 to be applied.
29



30
31 Figure SI1: Staining with Rose Bengal. The fibers are shown before (left) and after (the
32 treatment in the corresponding circles. Only the fiber from the tissue sample (E) is
33 stained, the fibers from the white T-shirt (A), the green T-shirt (B), the lab coat (C) and
34 from jeans (D) are unstained though they consist of 100% cellulose.

35

36

37 1. G. Liebezeit and E. Liebezeit, *Food Additives & Contaminants: Part A*, 2014,
38 **31**, 1574-1578.

39