

1 **Supporting Information**

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4 **Quantitative Drinking Water Arsenic Concentrations in Field**
5 **Environments Using Mobile Phone Photometry of Field Kits**

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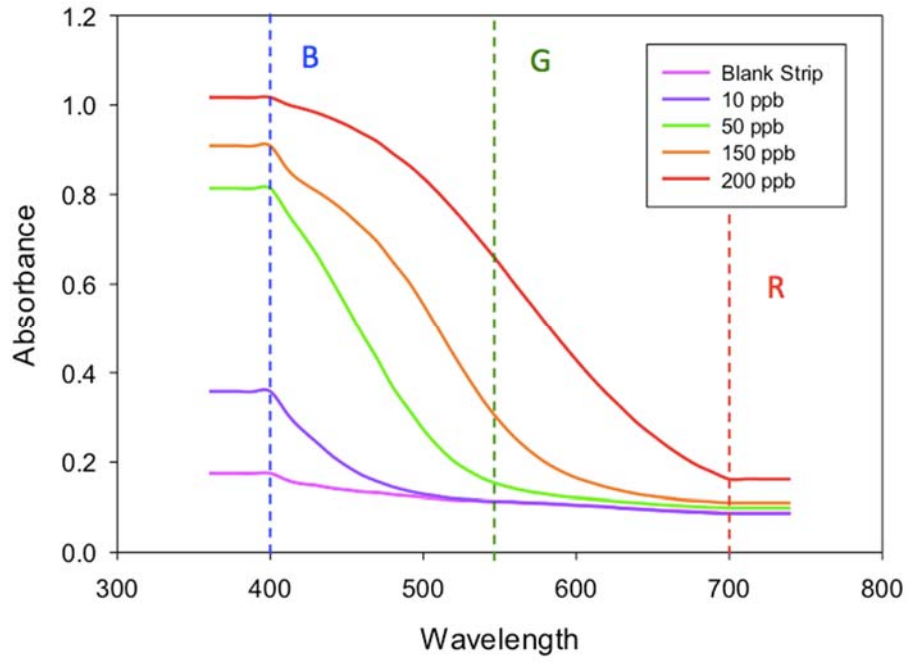
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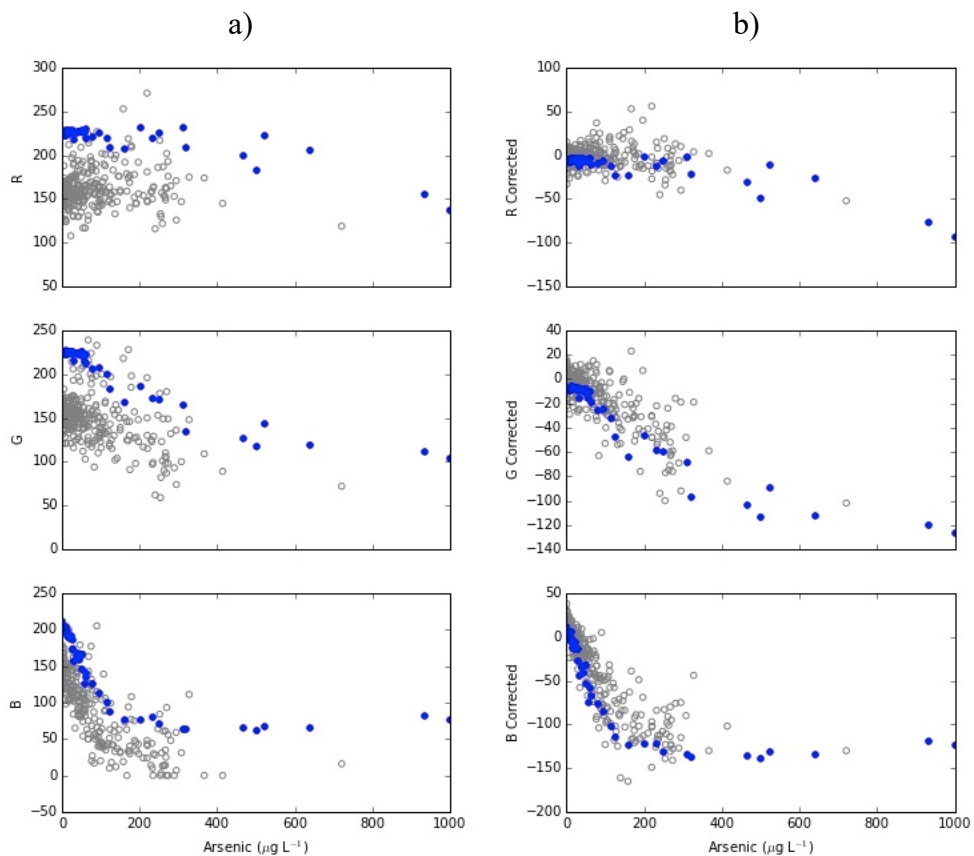
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18 Figure SI-1: Absorbance spectrum of field kit test strips of a blank and tests used for lab
19 solutions of As concentrations of 10, 50, 150, and 500 $\mu\text{g/L}$.
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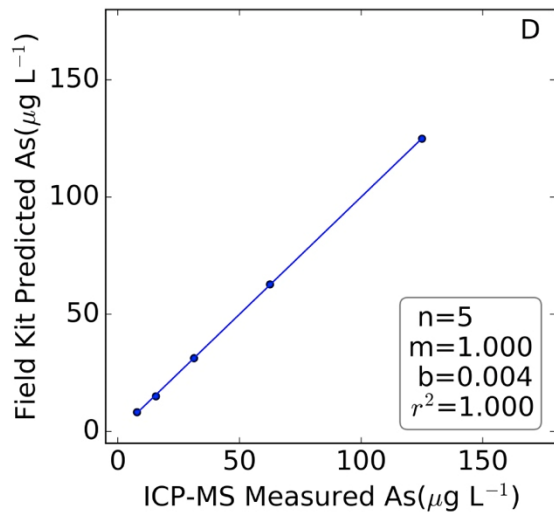
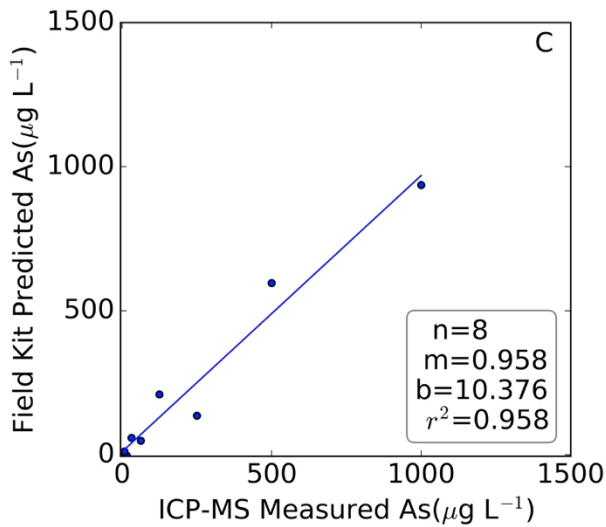
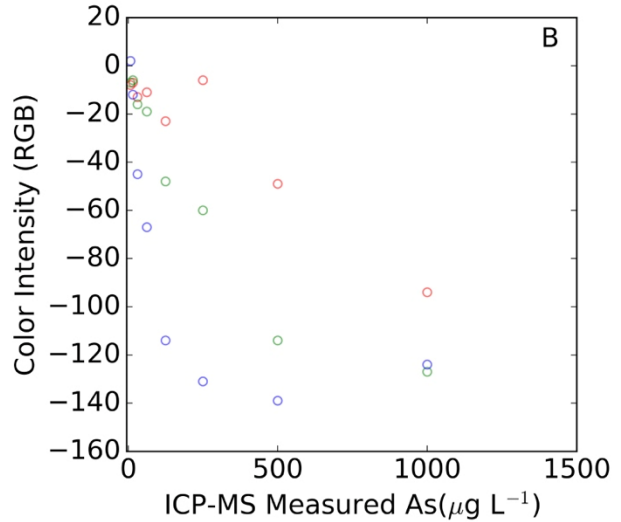
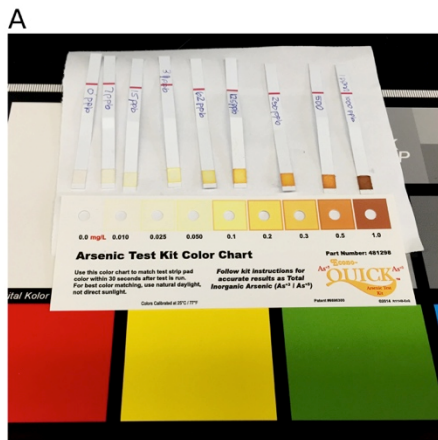
23 Figure SI-2: Relationship between ICP-MS measured As concentration ($\mu\text{g/L}$) for RGB color
24 values a) not normalized and b) normalized. Field and lab samples are represented by gray and
25 blue points respectively.
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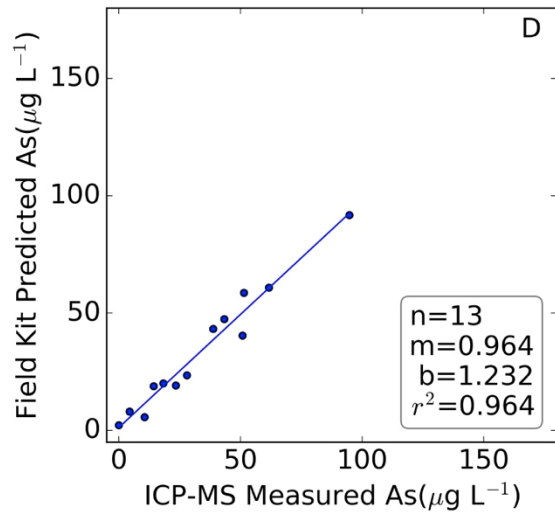
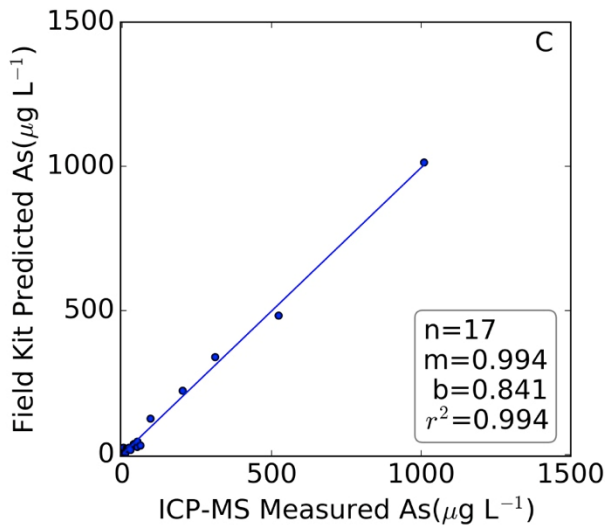
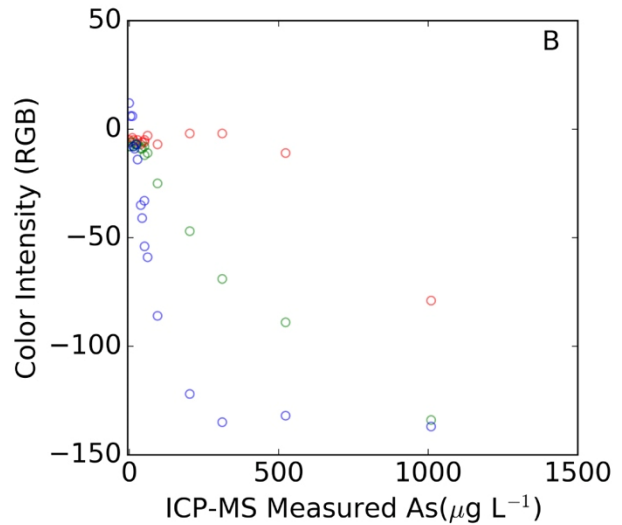
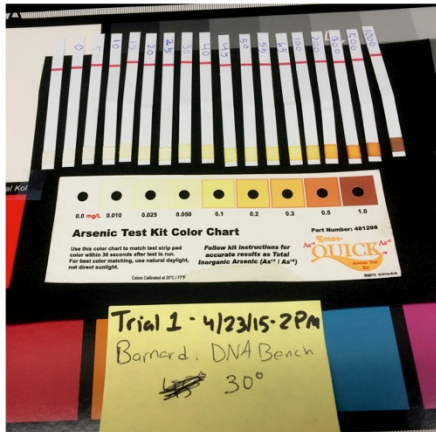
32 Figure SI-3: Summary of experiment done on April 16th, 2015 in laboratory controlled
 33 conditions showing the black normalized photograph taken on an iPhone 5S (A),
 34 relationship between normalized R, G, B with respect to As concentration (B), inductively
 35 coupled plasma mass spectrometry (ICP-MS) determined versus photo predicted As
 36 concentration for full range up to 1500 $\mu\text{g/L}$, and an expanded version of (C) is shown in (D)
 37 for As concentrations up to 150 $\mu\text{g/L}$.

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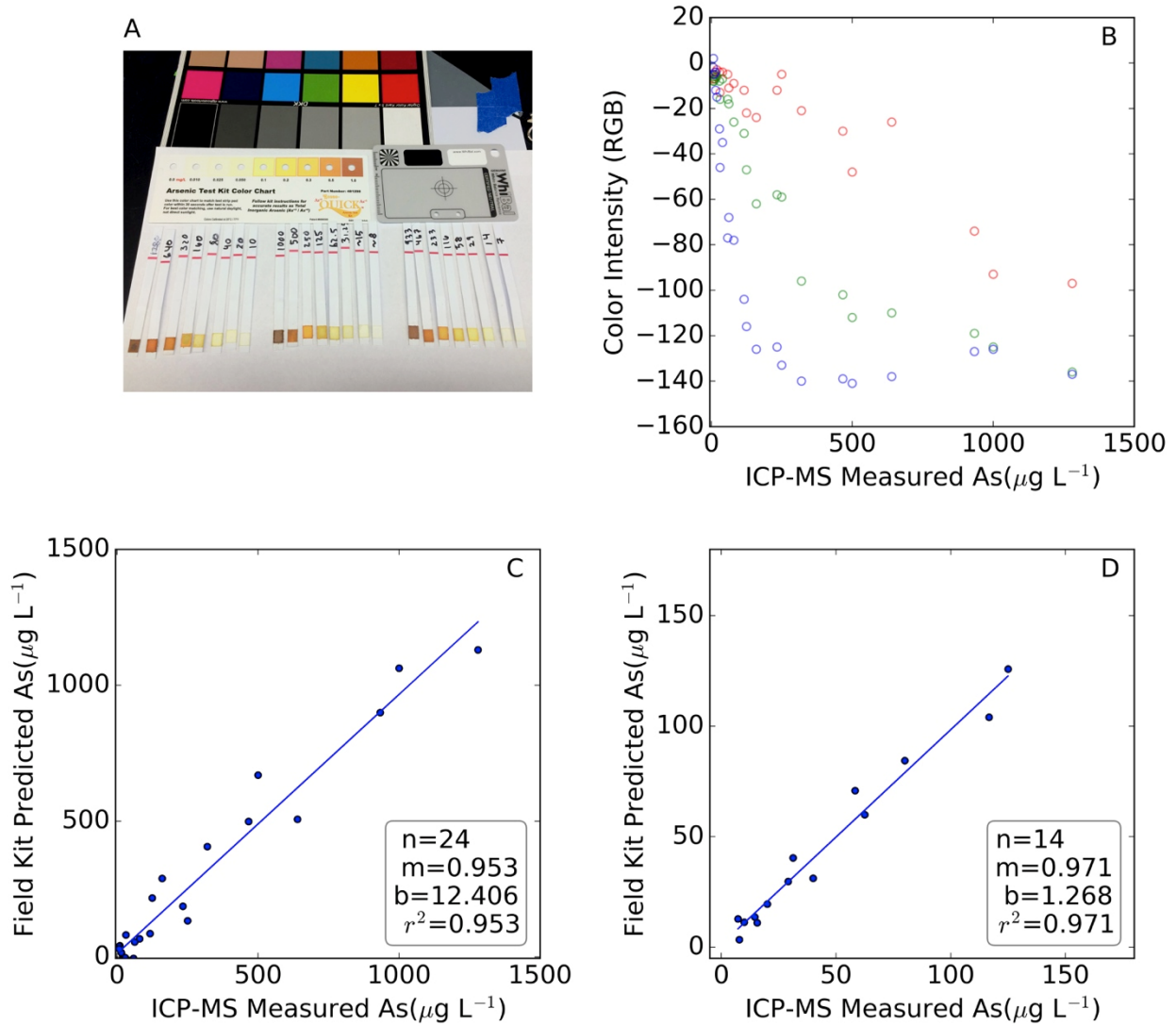
44 Figure SI-4: Summary of experiment done on April 23rd, 2015 in laboratory controlled
 45 conditions showing the black normalized photograph taken on an iPhone 5S (A),
 46 relationship between normalized R, G, B with respect to As concentration (B), inductively
 47 coupled plasma mass spectrometry (ICP-MS) determined versus photo predicted As
 48 concentration for full range up to 1500 $\mu\text{g/L}$, and an expanded version of (C) is shown in (D)
 49 for As concentrations up to 150 $\mu\text{g/L}$.
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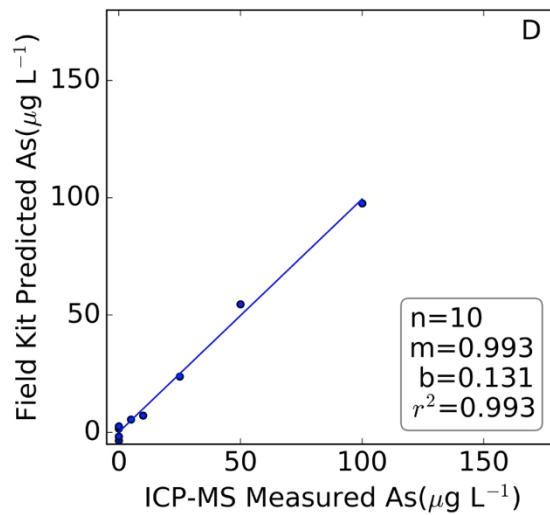
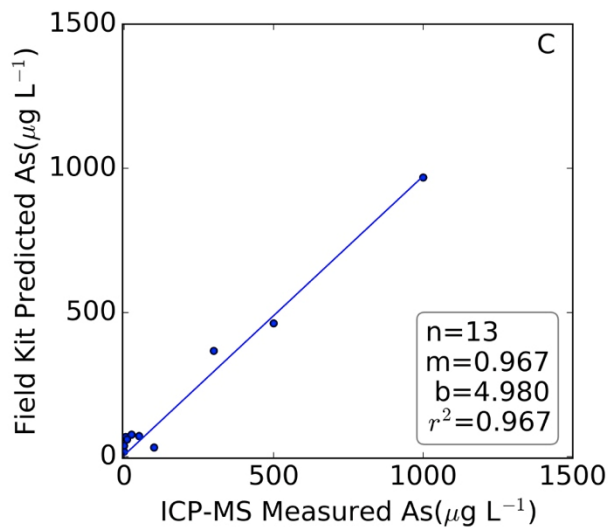
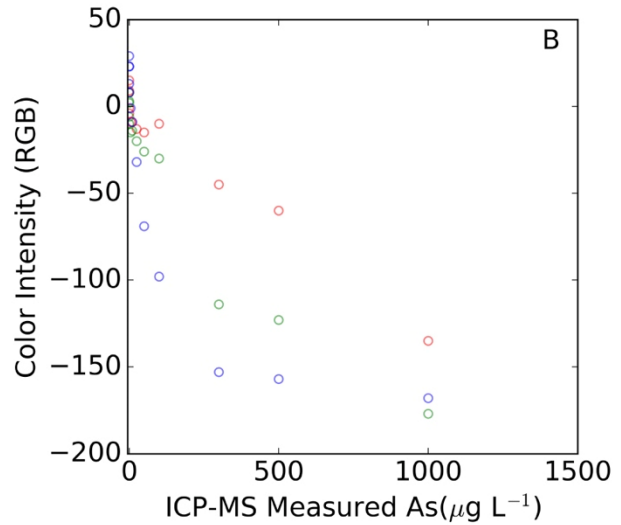
53 Figure SI-5: Summary of experiment done on October 7th, 2015 in laboratory controlled
 54 conditions showing the black normalized photograph taken on an iPhone 5S (A), relationship
 55 between normalized R, G, B with respect to As concentration (B), inductively coupled plasma
 56 mass spectrometry (ICP-MS) determined versus photo predicted As concentration for full range
 57 up to 1500 $\mu\text{g/L}$, and an expanded version of (C) is shown in (D) for As concentrations up to 150
 58 $\mu\text{g/L}$.

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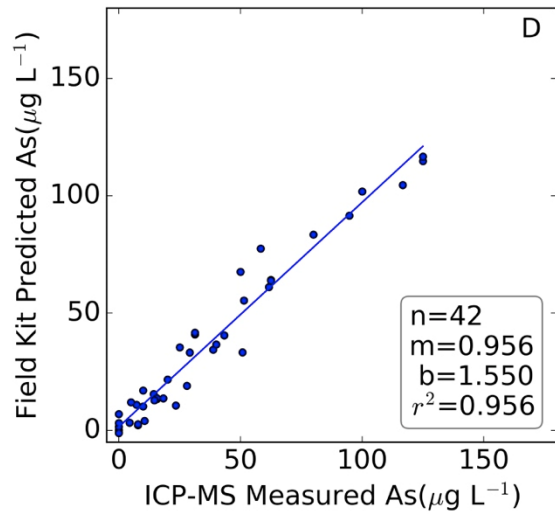
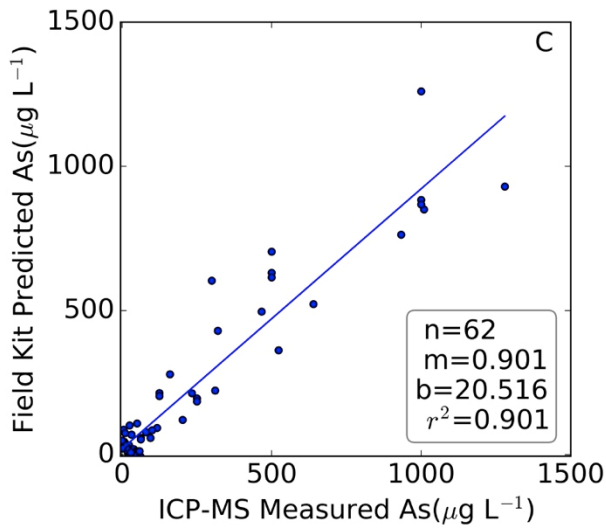
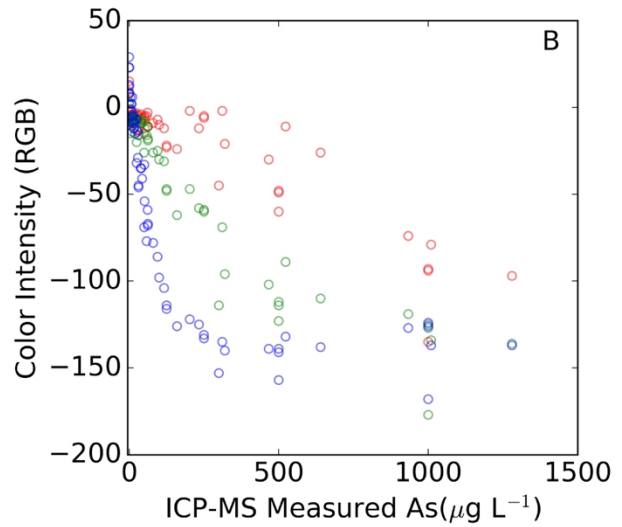
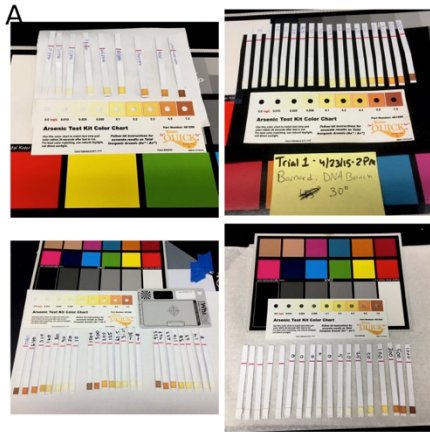
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64 Figure SI-6: Summary of experiment done on October 7th, 2015 in laboratory controlled
 65 conditions showing the black normalized photograph taken on an iPhone 5S (A), relationship
 66 between normalized R, G, B with respect to As concentration (B), inductively coupled plasma
 67 mass spectrometry (ICP-MS) determined versus photo predicted As concentration for full range
 68 up to 1500 $\mu\text{g/L}$, and an expanded version of (C) is shown in (D) for As concentrations up to 150
 69 $\mu\text{g/L}$.
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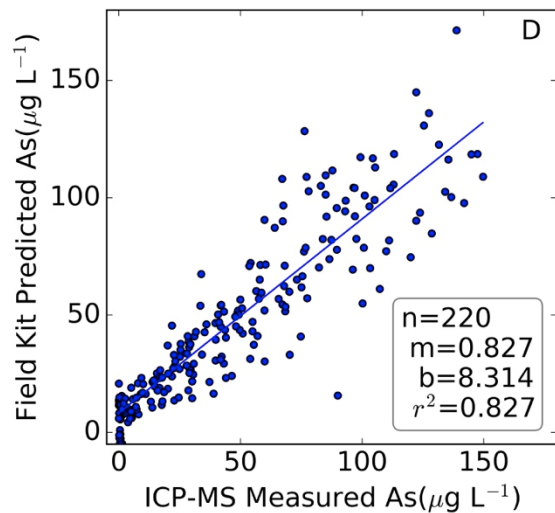
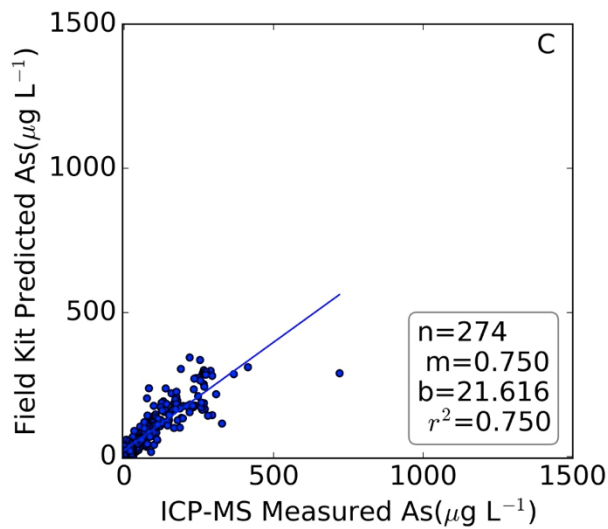
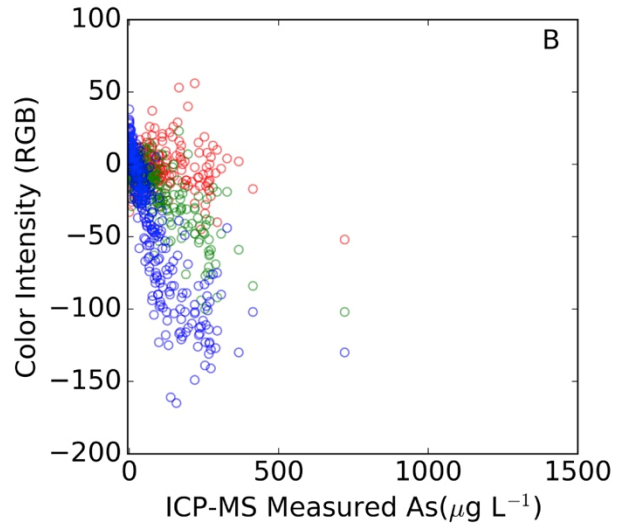
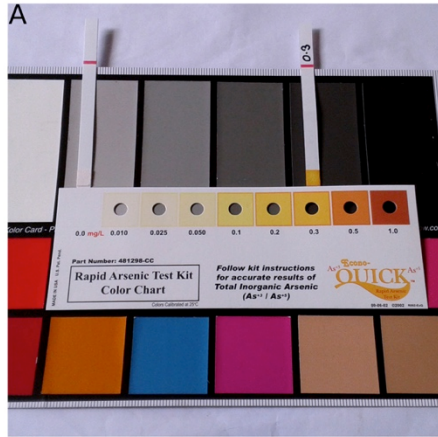
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75 Figure SI-7: Summary of experiment done in laboratory controlled conditions from Figure
 76 SX-SX showing the black normalized photograph taken on an iPhone 5S (A), relationship
 77 between normalized R, G, B with respect to As concentration (B), inductively coupled
 78 plasma mass spectrometry (ICP-MS) determined versus photo predicted As concentration
 79 for full range up to 1500 $\mu\text{g/L}$, and an expanded version of (C) is shown in (D) for As
 80 concentrations up to 150 $\mu\text{g/L}$.
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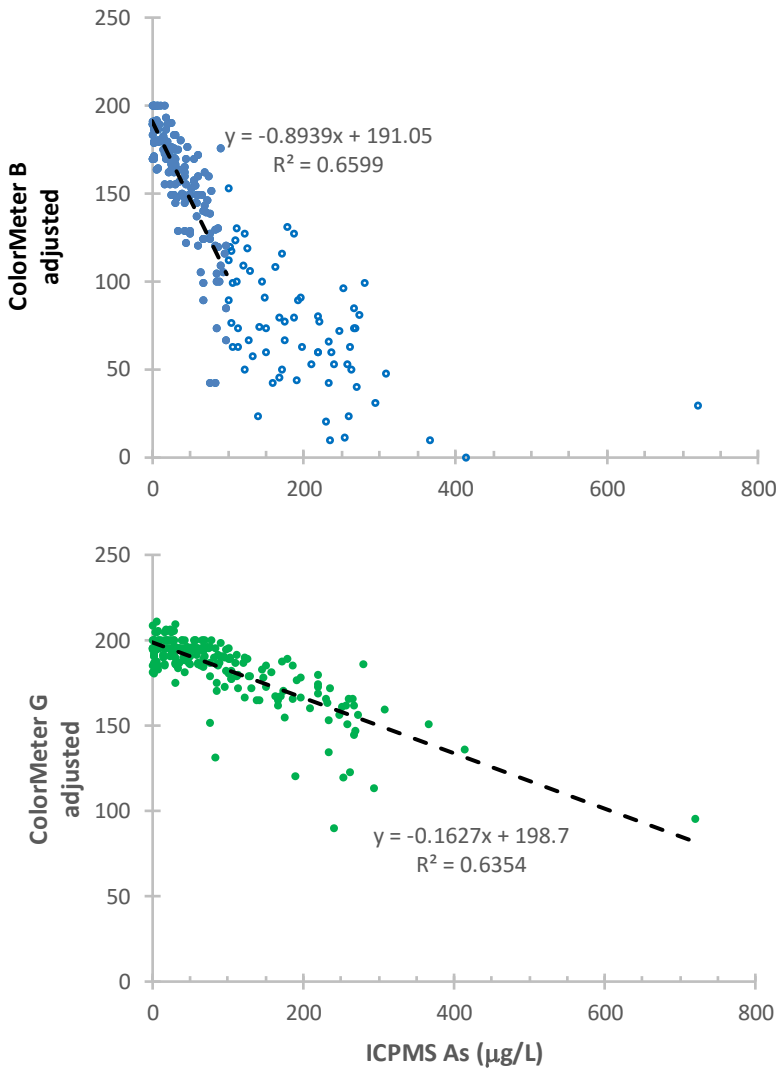
85 Figure SI-8: Summary of tests done in field in Araihaazar, Bangladesh on July-2015 showing
 86 the black normalized photograph taken on an iPhone 5S (A), relationship between
 87 normalized R, G, B with respect to As concentration (B), inductively coupled plasma mass
 88 spectrometry (ICP-MS) determined versus photo predicted As concentration for full range
 89 up to 1500 $\mu\text{g/L}$, and an expanded version of (C) is shown in (D) for As concentrations up to
 90 150 $\mu\text{g/L}$.
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Figure SI-9. ColorMeter readings for (a) Red and (b) Green as a function of As concentrations in 217 well-water samples from Bangladesh first tested in the field with the kit and subsequently analyzed in the laboratory by ICPMS. Readings for the reacting portion of the strip that was photographed in the field immediately after testing are adjusted by the proportion required to yield a constant R and G readings of 200 for a white portion of the test strip. The regression line shown in (a) considers only samples containing up to 100 µg/L As.



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