

Supplementary Information

Determination of Acid Dissociation Constants of Alizarin Red S, Methyl Orange, Bromothymol Blue and Bromophenol Blue Using a Digital Camera

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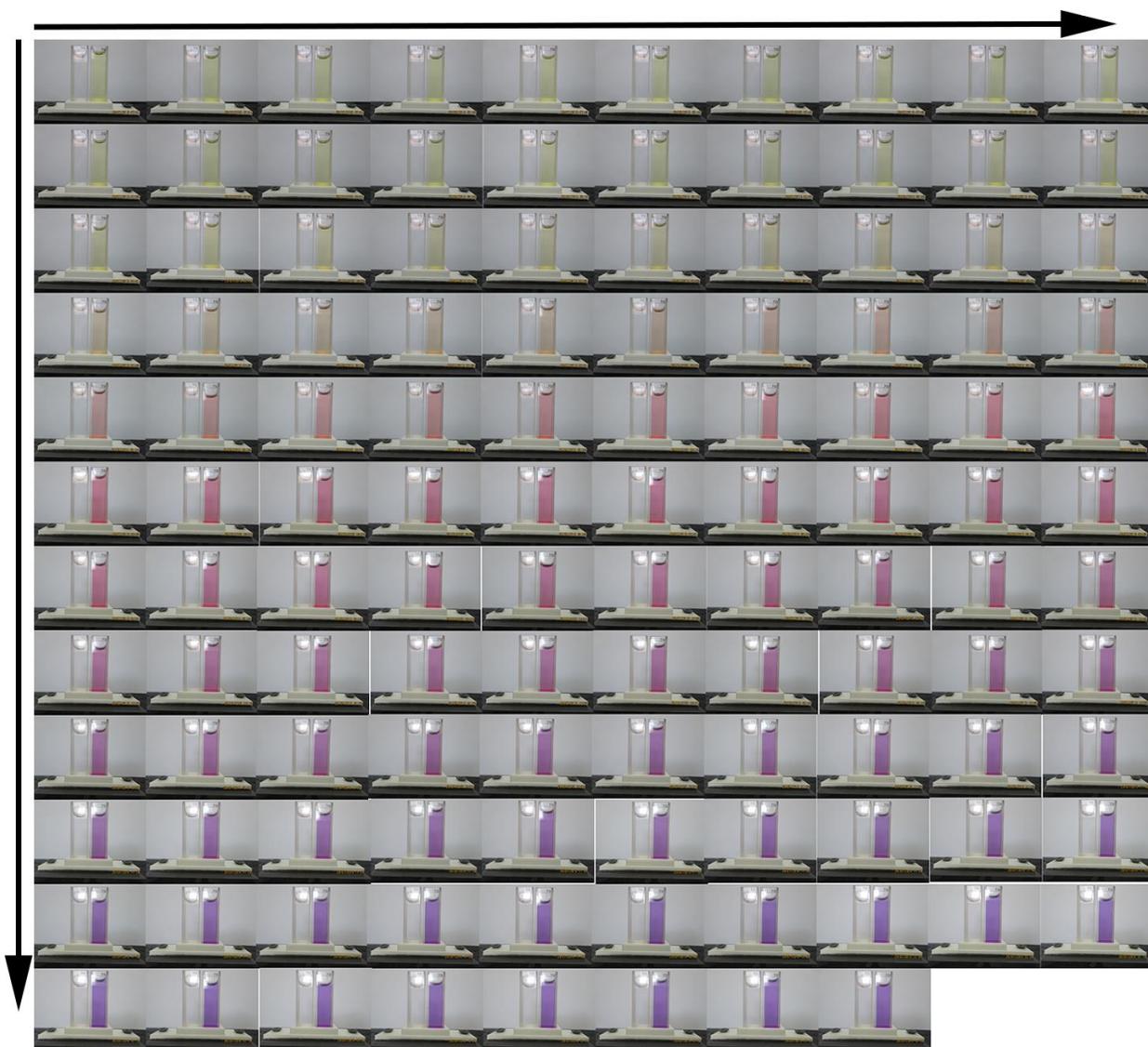


Fig S 1. Digital images of Alizarin Red S solution at pH values from 2.18 to 12.59, the arrows indicate the direction of increasing the pH. The exact values of pH are explained in Fig 1. Except for the pH value, other conditions were those given in the recommended procedure. Captured images were arbitrarily compressed to fit into the page margins; however, for image processing, the original uncompressed images were used.

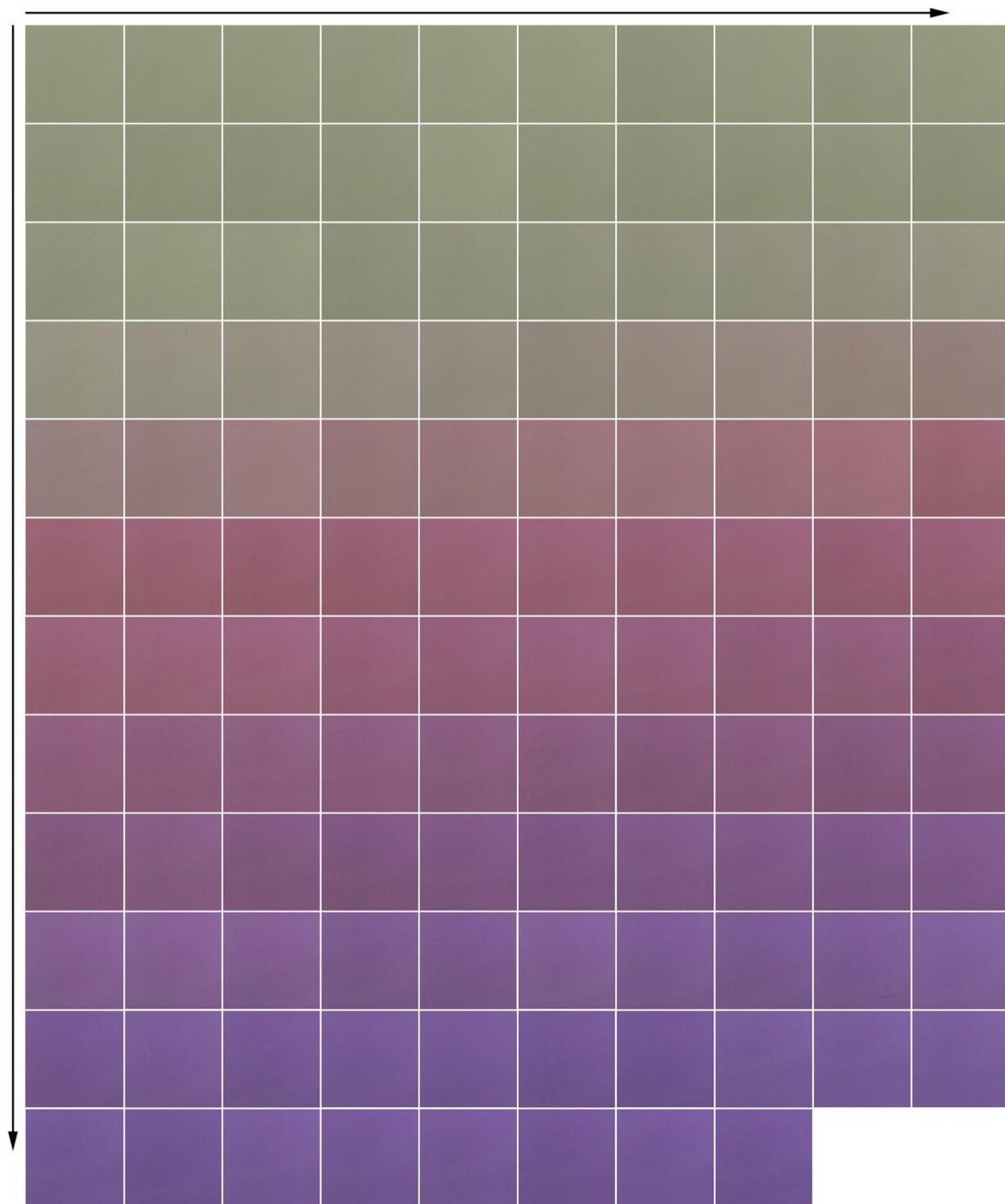


Fig S 2. The cropped ROI images of Alizarin Red S solution at pH values from 2.18 to 12.59, the arrows indicate the direction of increasing the pH. The exact values of pH are explained in Fig 1.

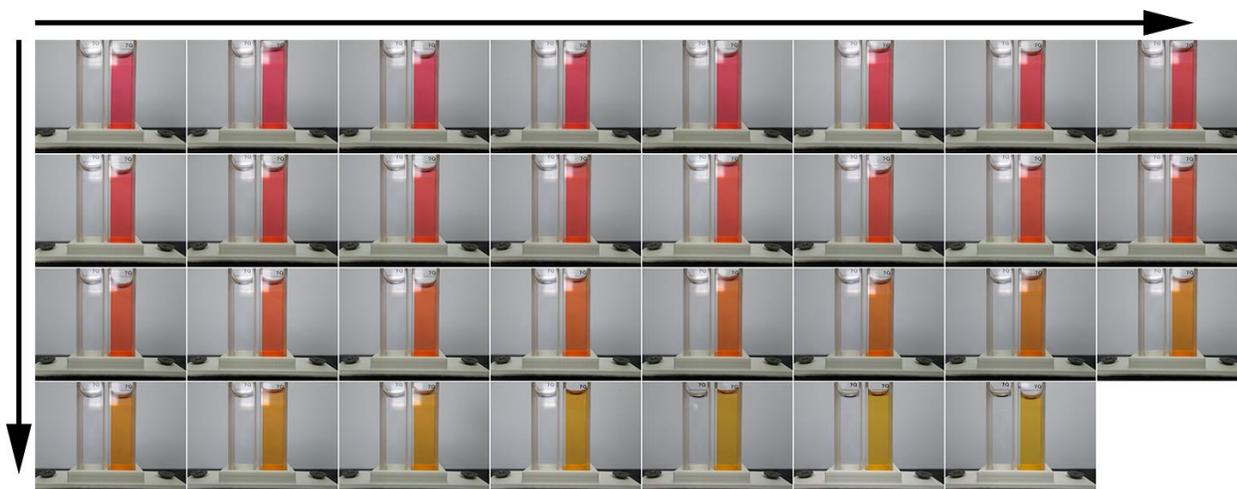


Fig S 3. Digital images of Methyl Orange at pH values from 1.50 to 5.77, the arrows indicate the direction of increasing the pH. The exact values of pH are explained in Fig 1. . Except for the pH value, other conditions were those given in the recommended procedure. Captured images were arbitrarily compressed to fit into the page margins; however, for image processing, the original uncompressed images were used.

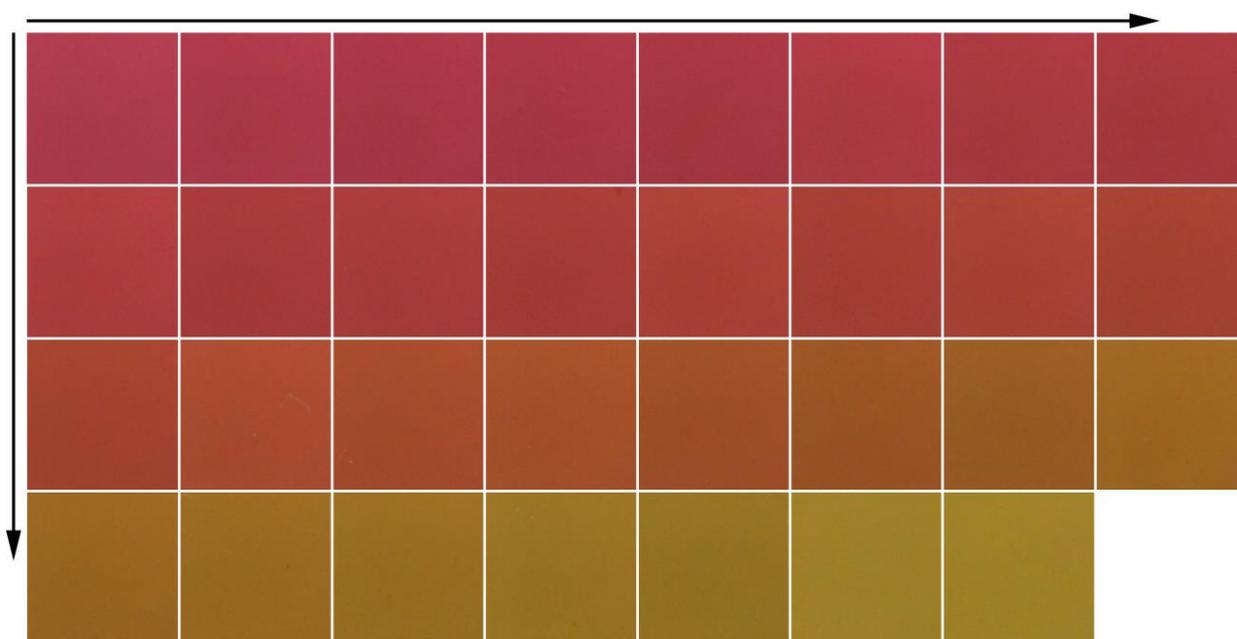


Fig S 4. The cropped ROI images of Methyl Orange at pH values from 1.50 to 5.77, the arrows indicate the direction of increasing the pH. The exact values of pH are explained in Fig 1.

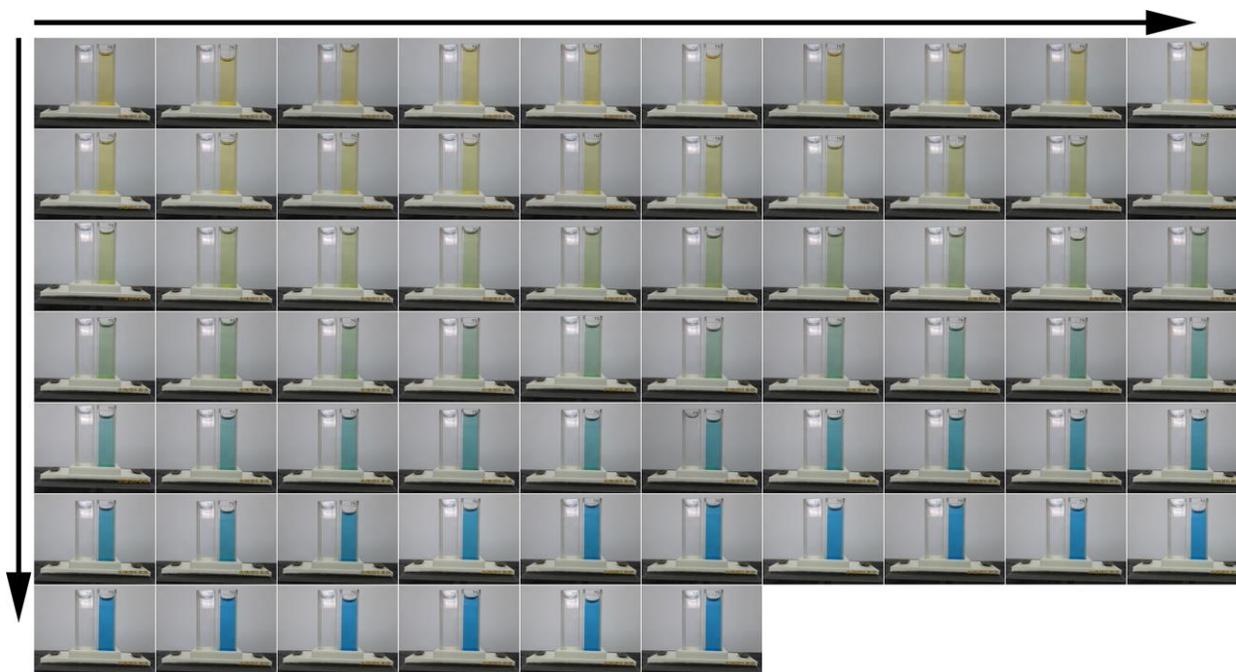


Fig S 5. Digital images of Bromothymol Blue at pH values from 3.90 to 10.40, the arrows indicate the direction of increasing the pH. The exact values of pH are explained in Fig 1. Except for the pH value, other conditions were those given in the recommended procedure. Captured images were arbitrarily compressed to fit into the page margins; however, for image processing, the original uncompressed images were used.

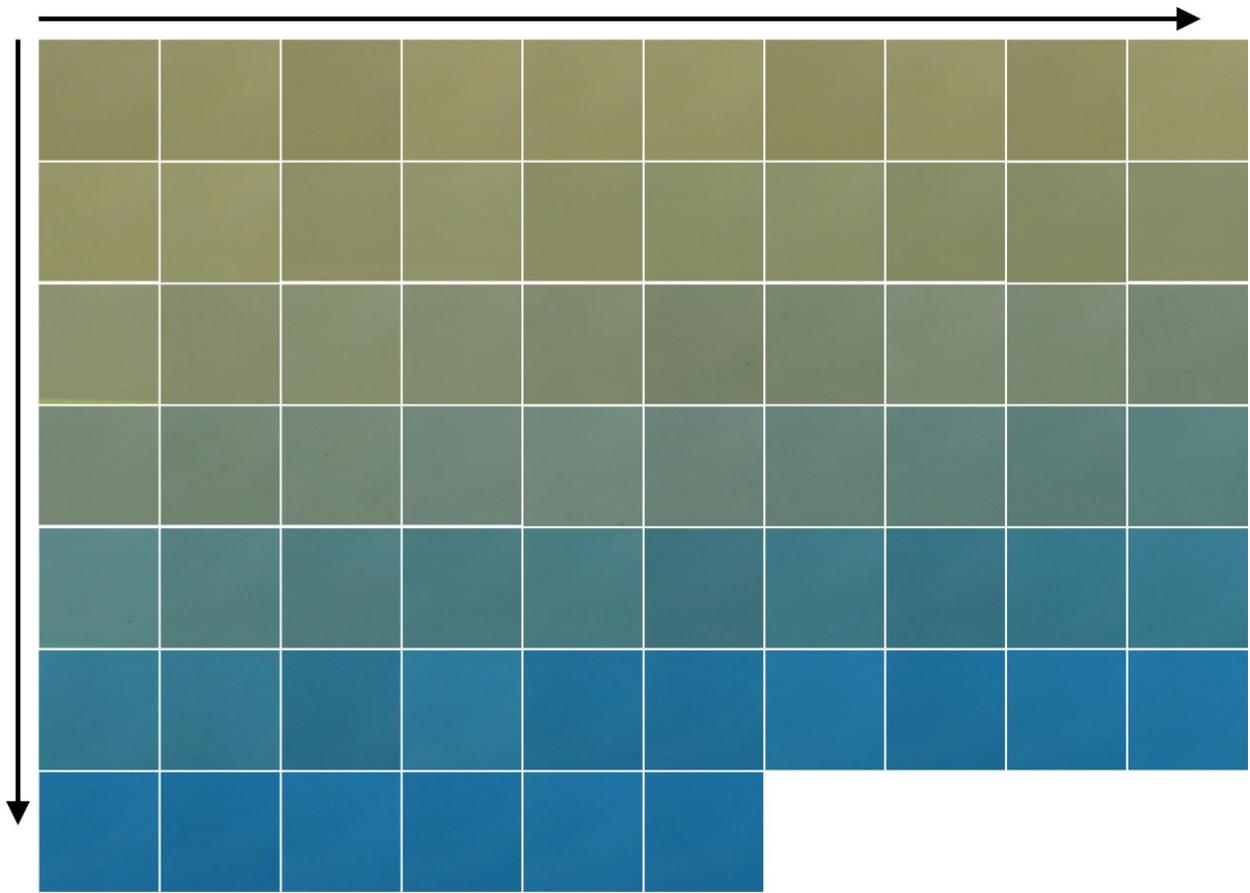


Fig S 6. The cropped ROI images of Bromothymol Blue at pH values from 3.90 to 10.40, the arrows indicate the direction of increasing the pH. The exact values of pH are explained in Fig 1.

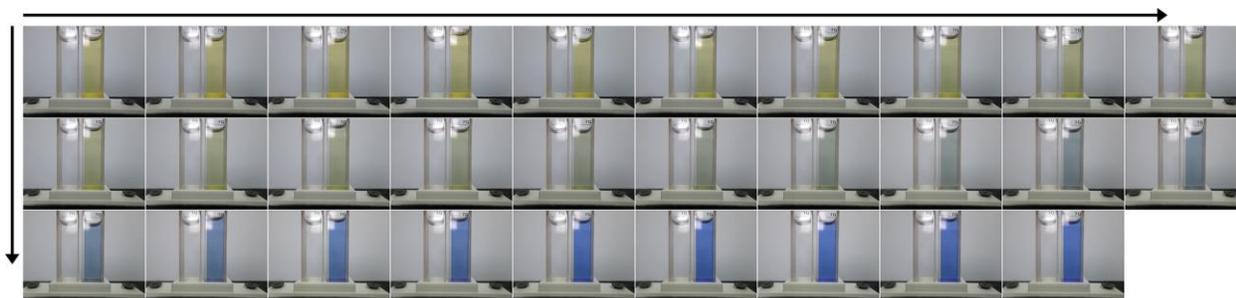


Fig S 7. Digital images of Bromophenol Blue at pH values from 1.47 to 10.20, the arrows indicate the direction of increasing the pH. The exact values of pH are explained in Fig 1. . Except for the pH value, other conditions were those given in the recommended procedure. Captured images were arbitrarily compressed to fit into the page margins; however, for image processing, the original uncompressed images were used.



Fig S 8. The cropped ROI images of Bromophenol Blue at pH values from 1.47 to 10.20, the arrows indicate the direction of increasing the pH. The exact values of pH are explained in Fig 2.

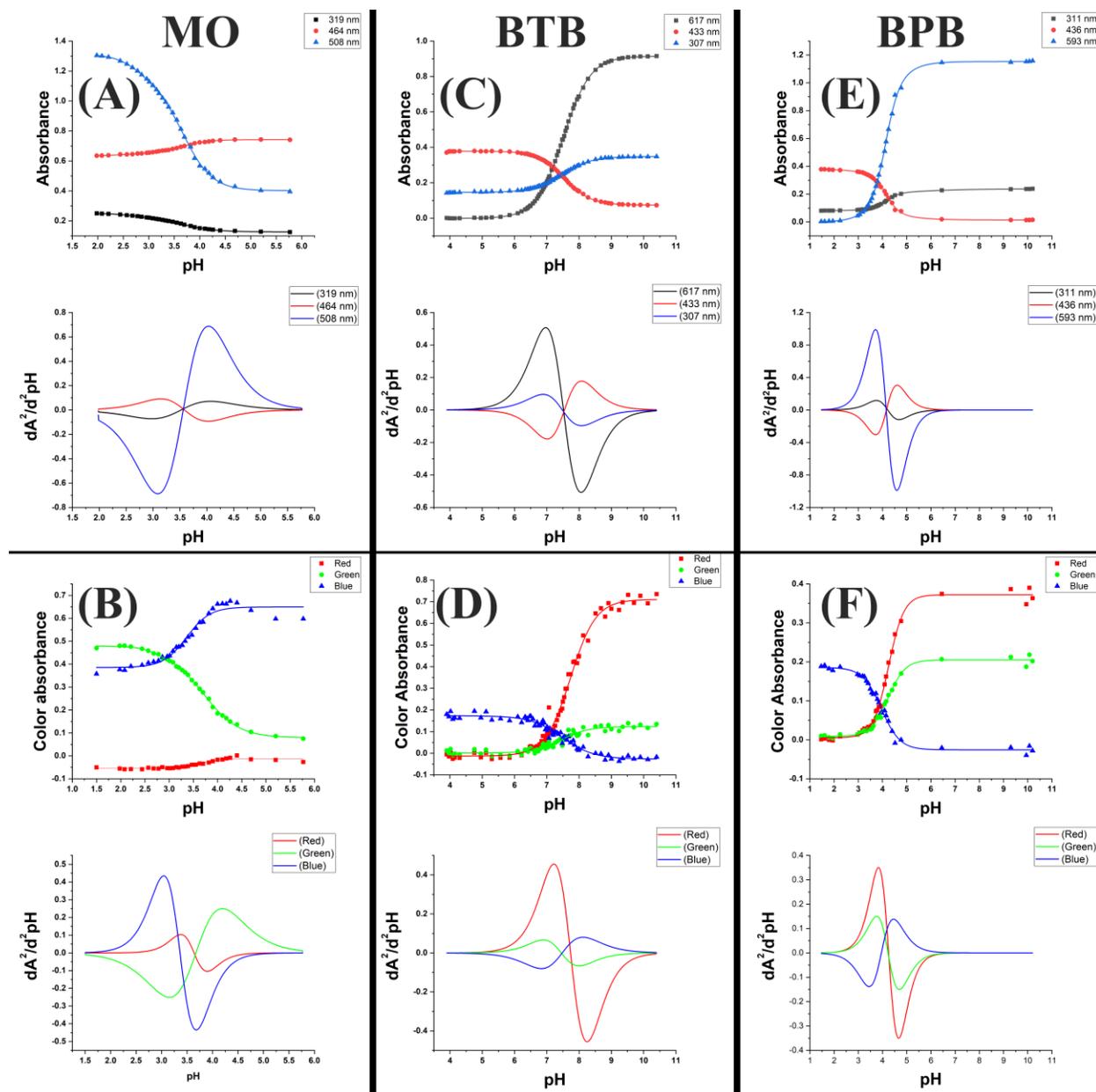


Fig S 9. The relation between pH and absorbance or color absorbance and the second derivative plots for MO (A) & (B), BTB (C) & (D), and BPB (E) & (F).

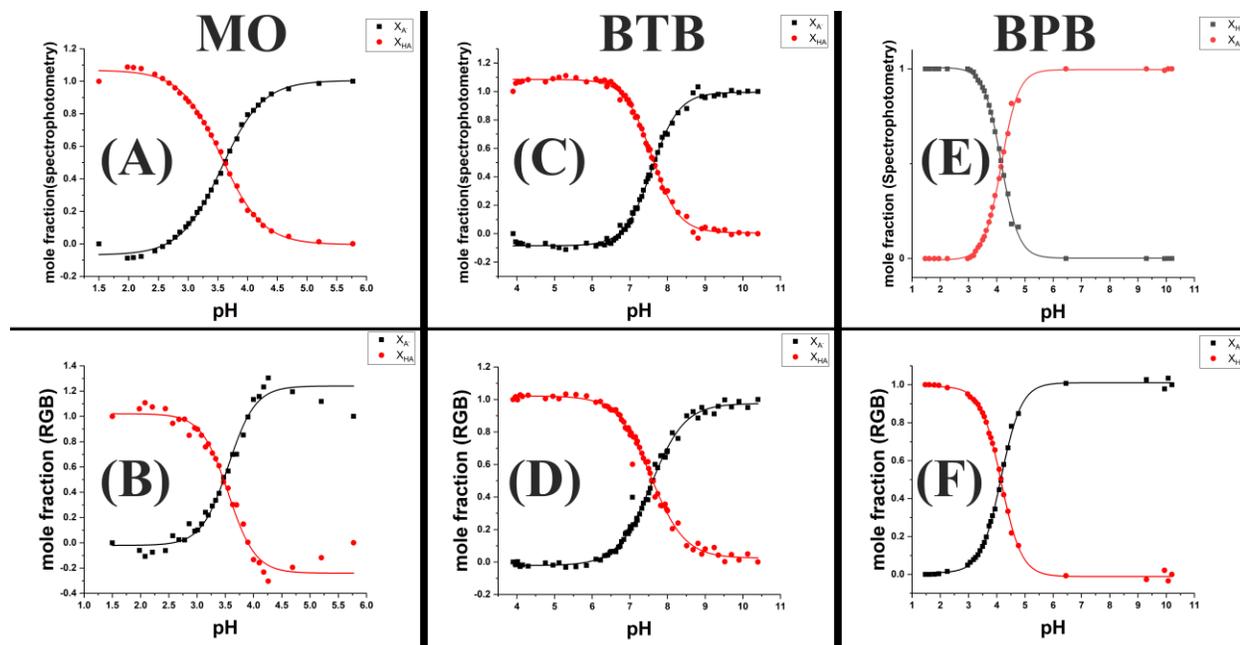


Fig S 10. The distribution plots of the pure species calculated from the spectrophotometry and the DIBA, for MO (A) & (B), BTB (C) & (D), and BPB (E) & (F)

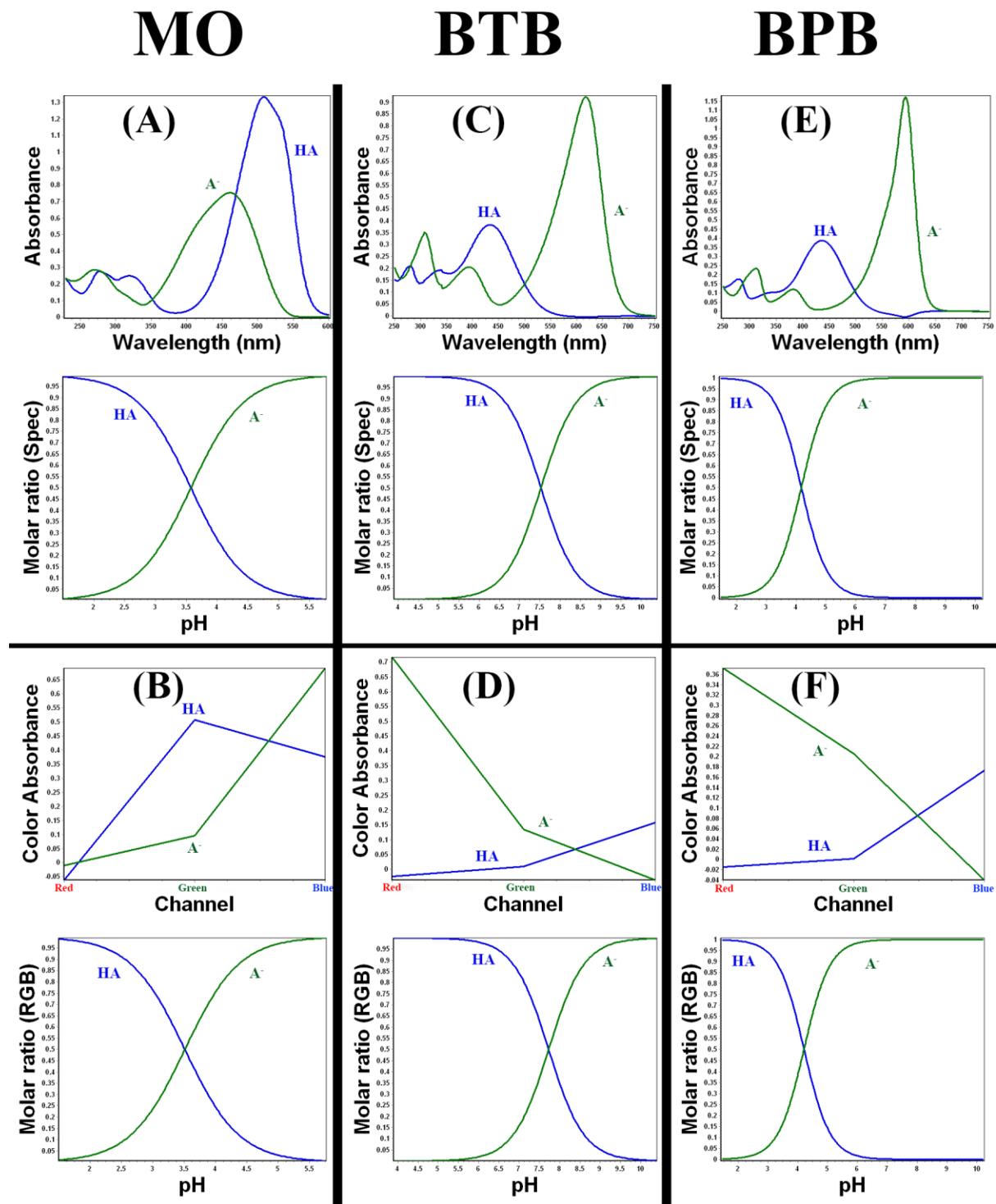


Fig S 11. The pure spectra and the pure RGB absorbance values along with the distribution curve of each species for MO (A) & (B), BTB (C) & (D), and BPB (E) & (F).