

## Supplementary Material

### **A dynamic gas extraction-assisted paper-based method for colorimetric determination of bromides**

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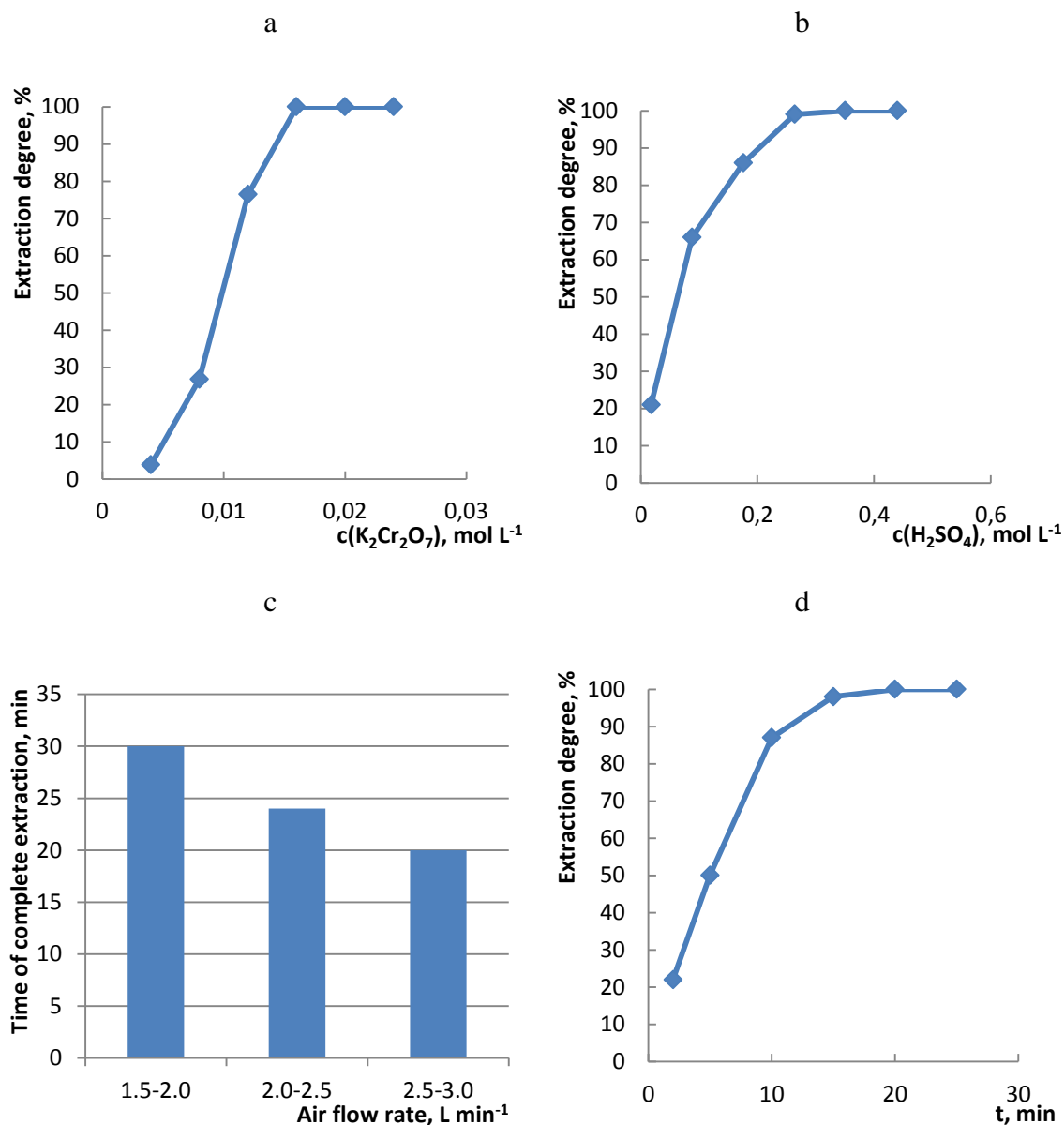
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**Fig. S1.** Effects of (a) concentration of potassium dichromate, (b) concentration of sulfuric acid, (c) air flow rate, and (d) time of gas extraction on the determination of bromides. a)  $c(\text{Br}^-) = 2 \text{ mg L}^{-1}$ ,  $c(\text{H}_2\text{SO}_4) = 0.35 \text{ mol L}^{-1}$ , air flow rate =  $2.5\text{--}3.0 \text{ L min}^{-1}$ ,  $t = 20 \text{ min}$ ; b)  $c(\text{Br}^-) = 0.2 \text{ mg L}^{-1}$ ,  $c(\text{K}_2\text{Cr}_2\text{O}_7) = 0.02 \text{ mol L}^{-1}$ , air flow rate =  $2.5\text{--}3.0 \text{ L min}^{-1}$ ,  $t = 20 \text{ min}$ ; c)  $c(\text{Br}^-) = 0.2 \text{ mg L}^{-1}$ ,  $c(\text{K}_2\text{Cr}_2\text{O}_7) = 0.02 \text{ mol L}^{-1}$ ,  $c(\text{H}_2\text{SO}_4) = 0.35 \text{ mol L}^{-1}$ ; d)  $c(\text{Br}^-) = 0.2 \text{ mg L}^{-1}$ ,  $c(\text{K}_2\text{Cr}_2\text{O}_7) = 0.02 \text{ mol L}^{-1}$ ,  $c(\text{H}_2\text{SO}_4) = 0.35 \text{ mol L}^{-1}$ , air flow rate =  $2.5\text{--}3.0 \text{ L min}^{-1}$ .

**Table S1.** Parameters of exponential calibration curves, sensitivity coefficients ( $A/t$ ) and squared correlation coefficients ( $R^2$ ) for determination of bromides

Parameter	Color coordinate		
	<i>R</i>	<i>G</i>	<i>B</i>
$y_0$	$162.9 \pm 1.1$	$177.5 \pm 1.5$	$213.4 \pm 1.1$
<i>A</i>	$77.7 \pm 1.4$	$64.4 \pm 1.9$	$31.8 \pm 1.4$
<i>t</i>	$0.45 \pm 0.02$	$0.50 \pm 0.05$	$0.55 \pm 0.08$
$A/t$	173	129	59
$R^2$	0.998	0.993	0.985

**Table S2.** Declared compositions of the pharmaceuticals analyzed in this study

Pharmaceutical	Declared composition
“Adonis-Brom”, OAO Borisovskii ZMP, Belarus	Adonis dry extract 69.07 mg, potassium bromide 250 mg, potato starch, sunflower oil, magnesium carbonate, talc, sugar, calcium stearate, silica, titanium dioxide, yellow wax, gelatin, paraffin, quinolone yellow
“Petrossinum”, syrup, Dalkhimfarm, Russia	liquid thyme extract 12 g, potassium bromide 1 g, sugar syrup 82 g, ethyl alcohol 80% 5 g
“Amtersol”, syrup, Yaroslavskaya farmfabrika, Russia	potassium bromide 1 g, sodium benzonate 1 g, ammonium chloride 0.2 g, thermopsis extract liquid (1:2) 0.2 g, licorice extract thick 0.6 g, ethyl alcohol 90% 10 g, sugar syrup 87 g