Table 1
Effect of phosphate accelerators on the corrosion resistance of phosphate coatings on an iron (08PS) substrate.

Phosphate solution	Accelerator	Accelerator concentration, (g/l)	Temperature of deposition, (t,°C)	Time of deposition (min)	Protective ability (corrosion resistance)(s)
FR	m-nbs	5.0	40	10	25
	nitrophenol	2.5	40	10	34
	hydroxylamine	5.0	40	10	110
	hydroxylamine	50.0	40	10	95
Tzinkar	m-nbs	5.0	40	10	180
	nitrophenol	2.5	40	10	110
	hydroxylamine	5.0	40	10	93

ZnO – 1.16 g/l; $NiNO_3 \cdot 6H_2O$ – 0.5208 g/l; HNO_3 – 0.614 ml; H_3PO_4 –1.472 ml; NaOH – 0.252 g/l. Nitrophenol, sodium m-nitrobenzosulfonate (m-nbs) and hydroxylamine were applied as phosphating accelerators. As samples were used sheets of cold-rolled steel grade (Art. 08PS). Metal plates were pretreated with abrasive material, followed by washing with distilled water.

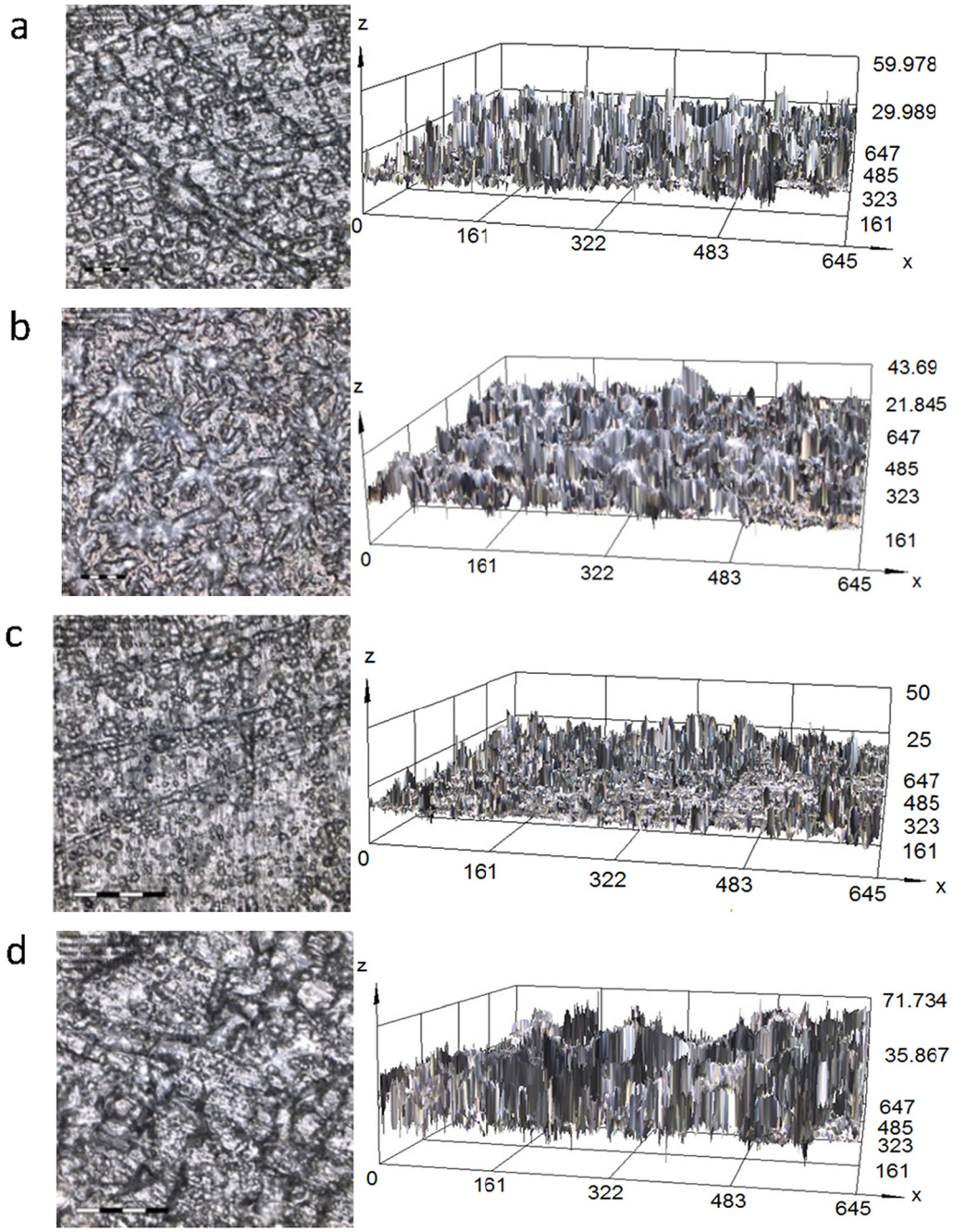

Fig. 1. 2d and 3d micrographs of iron samples without coating and with deposited phosphate coatings from Tzinkar solution in the presence of various accelerators. a – Tzinkar without an accelerator; Tzinkar in the presence of accelerators: (b) – m-NBS (5 g l); (c) – nitrophenol (2.5 g/l); (d) – hydroxylamine – (5 g/l).