



**Figure 5.** Micrographs of steel samples with zirconium oxide coatings deposited from the solution: 0.2 g/L Zr (IV) + 0.15 g/L W (VI) (a) and with additions of Mo (VI) of 0.05 g/L (b), 0.1 g/L (c), and 0.15 g/L (d). Size pixels 1024 × 1024; size μm 129 × 129.

According to Figure 5a, in the absence of Mo (VI) ions in the deposition solution: 0.2 g/L Zr (IV) + 0.15 g/L W (VI), a coating was observed on the surface of the iron sample in certain areas only. When a small concentration of molybdenum 0.05 g/L was added to the deposition solution (Figure 5b), an increase in the surface area with the deposited coating was obtained. However, the coating was also formed only in certain areas. At a molybdenum concentration of 0.1 g/L, a uniform fine-grained coating was formed (Figure 5c) over the entire surface of the iron sample. With an increase in the concentration of Mo (VI) to 1.5 g/L, a reduction in the surface with a deposited oxide-zirconium coating and the appearance of microcracks were observed. Microcracks can negatively affect corrosion resistance by creating conductive paths of electrolyte and its penetration through the coating to the base.

The thickness of oxide-zirconium coatings deposited from a solution of 0.2 g/L Zr (IV) + 0.15 g/L W (VI) with different concentrations of Mo (VI) was investigated (Figure 6).