**Antibacterial printing vanishes – new application in food industry**

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Contamination of food with pathogenic microorganisms causing food-borne diseases poses a real threat to human health. One of the methods to reduce the food contamination is the use of food packaging with antibacterial properties (active packaging). They prevent adverse changes in food quality by destroying microorganisms or inhibiting their growth. Hence, we proposed application of nanopowders with antibacterial properties introduced to the polygraphic vanishes used to seal the surface of printed materials. Zinc oxide, nanoparticles with confirmed antibacterial properties *in substantia* / in nanolayer, were added to the commercial vanishes of either aqueous (ABV, dispersive vanish) or organic (OBV, offset vanish) solvent base. They were printed on 240 g/m2 paper sheets and then cut in sterile conditions into 1 cm2 samples. Antibacterial properties were checked with the agar disk diffusion method using reference and wild-type (isolated from the clinical cases) bacterial serotypes. Samples were placed on the surface of the bacteria-covered medium. The efficiency of antibacterial activity of varnishes mixed with zinc oxide was measured as the extent of the area in which bacteria growth was inhibited. Varnish layers with the addition of ZnO nanoparticles showed antibacterial / bacteriostatic activity against common bacterial strains, both opportunistic, pathogenic and common bacteria causing losses in the food industry.

According to the obtained results we can conclude that the addition of ZnO to the vanishes add antibacterial properties to the final print. Nanoparticles-enhanced vanishes showed antibacterial and bacteriostatic properties, therefore it can find potential applications in medicine, broader health care, and food industry.

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