Oligodynamic

Especially heavy metals show this effect. The exact mechanism of action is still unknown. Data from silver suggest that these ions denature proteins (enzymes) of the target cell or organism by binding to reactive groups resulting in their precipitation and inactivation. Silver inactivates enzymes by reacting with the sulfhydryl groups to form silver sulfides. Silver also reacts with the amino-, carboxyl-, phosphate-, and imidazole-groups and diminish the activities of lactate dehydrogenase and glutathione peroxidase. Bacteria (gram+ and gram-) are in general affected by the oligodynamic effect, but they can develop a heavy-metal resistance, or in the case of silver a silver-resistance. Virus in general are not very sensitive. The toxic effect is fully developed often only after a long time (many hours).