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**Substitution effect on superconductivity in the solid solutions
(Mo_{1-x}T_x)₃Sb₇, where T = Nb, Ru and Fe**

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The Nb-, Ru- and Fe-substitution effects on superconducting and magnetic properties of Mo₃Sb₇ ($T_c = 2.1$ K) were studied by measuring the magnetic susceptibility, electrical resistivity and specific heat. It is found that single phase (Mo_{1-x}T_x)₃Sb₇ samples, where T = Nb, Ru and Fe, are obtained for the concentrations $x < 0.2$. In this range, with increasing doping concentration x , the lattice parameter and the cell volume of these three systems are found to be gradually decreased. However, the substitution effect on the superconducting transition temperature T_c is completely different between (Mo_{1-x}Fe_x)₃Sb₇, (Mo_{1-x}Ru_x)₃Sb₇ and (Mo_{1-x}Nb_x)₃Sb₇. In the first system, the Fe substitution depresses T_c down to 1.5 K, whereas in the Ru-substituted samples, there is negligible change in T_c . In contrast with the Fe- or Ru-substitution, the replacement of Mo by Nb enhances T_c up 2.3 K. Considering the relationship between the lattice parameters and T_c we may conclude that the change in T_c cannot be ascribed to the volume effect. We discuss the observed behaviour in terms of T-substitution induced changes in the electronic structure at the Fermi energy.