Some theorems on equality of L-functions of elliptic curves

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Abstract: Problem of equality $L(A,K,s) = L(B,M,s)$ where A, B are elliptic curves over Galois number fields K, M respectively, is studied. The problem is solved in the case if A, B are defined over $\mathbf{Q}$ and K, M are not quadratic over $K \cap M$ (Theorem 1), as well as in the case if $K \cap M = \mathbf{Q}$ and $(6,n) = 1$, where $n = (K : \mathbf{Q})$ (Theorem 2).