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Isomorphism classes in a class of Abelian extensions

We give a general method for classification of isomorphism classes of Hopf algebra extensions of the group algebra kC_p of a cyclic group kC_p (p prime) by the group algebra kG of a finite abelian p-group G. Our principal aims are: (i) A structure theorem for the second Hopf cohomology group, (ii) An isomorphism criterion for two extensions, (iii) A bijective correspondence between isoclasses of extensions and orbits of $Aut_{C_p}(G) \times AutC_p$ in the second Hopf cohomology group, (iv) The number of orbits in case of commutative extensions or $G = C_p \times C_p$.