For brevity, let us call a Hopf algebra nontrivial if it is neither commutative, nor cocommutative. We determine the number of nonisomorphic Hopf algebras $H$ which exhibit an extension $k^G \to H \to kC_p$ with $G = C_{p^e} \times C_p, e \geq 1$ and $p$ odd. The even order case has been done by Y. Kashina (2003).

Applying general theory for counting isomorphism classes of extensions with an arbitrary finite $p$-group $G$ we prove the following

Theorem: For any $e \geq 2$ there are $2p + 8$ nontrivial Hopf algebras in the class of Hopf algebras which are extensions of $k^G$ by $kC_p$. Combining with some of our previous results the Theorem allows us to complete calculation of the number of non-isomorphic nontrivial semisimple Hopf algebras of dimension $p^4$ containing an abelian group of group-likes of order $p^3$. That number equals to $5p + 24$ if $p > 3$, and 33, otherwise. (Received August 09, 2014)