998-11-50 **Oscar Moreno*** (`o_moreno@upr1.upr.clu.edu`), University of Puerto Rico, Department of Computer Science, Rio Piedras, PR 00931, and **Francis N Castro** (`fcastro@goliath.cnnet.clu.edu`), University of Puerto Rico, Department of Mathematics, Rio Piedras, PR 00931. *Improvement of Ax-Katz's, Moreno-Moreno's and Wan's Results]Improvement of Ax-Katz's, Moreno-Moreno's and Wan's Results .*

In this paper we introduce the p^m-weight degree of a polynomial and using techniques of Ax-Katz, Moreno-Moreno and Adolphson-Sperber, we improve results of Ax-Katz, Moreno-Moreno and Adolphson-Sperber. We apply our result of divisibility to the Waring's problem and to the calculation of the covering radius of primitive codes with three zeros. We improve the divisibility of diagonal equations of the type $a_1 X_1^{d_1} + \cdots + a_n X_n^{d_n}$ over finite field whenever d_i satisfies certain conditions. This improvement give cases where Ax-Katz's, Moreno-Moreno's and Wan's results can be greatly improved.