Summary: Let \((R, \mathfrak{m})\) be a generalized Cohen-Macaulay local ring of dimension \(d\), and \(f_1, \ldots, f_r\) a part of system of parameters of \(R\). In this paper we give explicit numbers \(N\) such that the lengths of all lower local cohomology modules and the Hilbert function of \(R/(f_1, \ldots, f_r)\) are preserved when we perturb the sequence \(f_1, \ldots, f_r\) by \(\varepsilon_1, \ldots, \varepsilon_r \in \mathfrak{m}^N\). The second assertion extends a previous result of Srinivas and Trivedi for generalized Cohen-Macaulay rings.

MSC:
- 13H10 Special types (Cohen-Macaulay, Gorenstein, Buchsbaum, etc.)
- 13D40 Hilbert-Samuel and Hilbert-Kunz functions; Poincaré series
- 13D45 Local cohomology and commutative rings

Keywords:
- Hilbert function; small perturbation; generalized Cohen-Macaulay ring; local cohomology

Full Text: DOI

References:
[1] Cuong, N. T.; Quy, P. H., On the structure of finitely generated modules over quotients of Cohen-Macaulay local rings

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