Abstract

It is known that, if a is an algebraic element of a Banach algebra A, then its spectrum $\sigma(a)$ is finite and there exists $\gamma > 0$ such that the Hausdorff distance to spectra of nearby elements satisfies

$$\Delta\big(\sigma(a+x), \sigma(a)\big) = O(\|x\|^{\gamma}) \qquad \text{as } x \to 0.$$

We prove that the converse is also true, provided that A is semisimple.