# Calc-alkalic vs. tholeiitic series revisited: a radical view

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It has been generally accepted that calc-alkalic magmas differentiate with greater contributions of crustal components, via. wall-rock assimilation, mixing of crust-derived felsic magma etc, whereas tholeiitic magmas show more genuine mantle signatures. Sr-isotopic micro-analyses of plagioclase in Zap volcano demonstrates the following characteristics: Sr isotopic ratios of plagioclase in tholeiitic rocks are constant at 0.7042-0.7044 and show little correlation with An content, whereas those in calc-alkalic rocks show more complex characteristics. The observation that high-An plagioclase embedded in the most mafic calc-alkalic basaltic andesites exhibits the lowest 87Sr/86Sr of ˜0.7038 should be stressed. Examination of Sr isotopic and major/trace element compositions of melts that crystallize plagioclase may lead to the conclusion including a crustal-origin for the tholeiitic magmas and a mantle-origin for calc-alkalic basaltic magmas that mix with crust-derived tholeiitic magmas to form calc-alkalic andesites.