Let $\phi(x)$ be a rational function of degree $d > 1$ defined over a number field $K$ and let $\Phi_n(x,t) = \phi^{(n)}(x) - t \in K(x,t)$ where $\phi^{(n)}(x)$ is the $n$th iterate of $\phi(x)$. We give a formula for the discriminant $D_{n,\phi}(t)$ of the numerator of $\Phi_n(x,t)$ and show that, if $\phi(x)$ is postcritically finite, for each specialization $t_0$ of $t$ to $K$, there exists a finite set $S_{t_0}$ of primes of $K$ such that for all $n$, the primes dividing $D_{n,\phi}(t_0)$ are contained in $S_{t_0}$. This is joint work with Farshid Hajir. (Received September 02, 2009)