Let $f(x) \in \mathbb{Z}[x]$. Set $f_0(x) = x$ and, for $n \geq 1$, define $f_n(x) = f(f_{n-1}(x))$. We describe several infinite families of polynomials for which the infinite product

$$\prod_{n=0}^{\infty} \left(1 + \frac{1}{f_n(x)}\right)$$

has a specializable continued fraction expansion of the form

$$S_\infty = [1; a_1(x), a_2(x), a_3(x), \ldots],$$

where $a_i(x) \in \mathbb{Z}[x]$ for $i \geq 1$.

When the infinite product and the continued fraction are specialized by letting $x$ take integral values, we get infinite classes of real numbers whose regular continued fraction expansion is predictable.

Under some simple conditions, all the real numbers produced by this specialization are transcendental. (Received September 03, 2004)