# Riccati technique and oscillation constant for modified Euler type half-linear equations

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**Abstract.** We study equations in the form

$$\left[r(t)t^{p-1}\Phi(x')\right]' + \frac{s(t)}{t\log^p t}\Phi(x) = 0, \quad t \in [a, \infty),$$

where $x$ is the unknown function, with the scalar $p$-Laplacian $\Phi(x) = |x|^{p-1}\operatorname{sgn} x$ for an arbitrarily given number $p > 1$. It is known that these equations are conditionally oscillatory for some coefficients. The conditional oscillation for certain non-constant coefficients $r, s$ has been proved via the Prüfer angle. Using a new modification of the Riccati method (i.e., by a different approach), we identify easy-to-use conditions on the coefficients which assure the conditionally oscillatory behaviour as well. The obtained results cover equations whose oscillatory properties were not known and these results are new even for linear equations (i.e., for $p = 2$).

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