

SYNTHESES OF TRIAZOLOPYRIDINE DERIVATIVES WITH  
NICKEL PEROXIDE

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Nickel Peroxide(Ni-PO) has been used as an oxidizing agent for many functional groups. Previously, Nakagawa *et al.* reported that the oxidation of hydrazones afforded azo compounds, while diphenylacetylene was obtained when benzil dihydrazone was oxidized with Ni-PO in ether solution. Oxidation of 2-pyridyl dihydrazone with Ni-PO gave cyclized product 3,3'-bis(1,2,3-triazolo[1,5-a]pyridine) in 64.3% yield instead of acetylenic compound.

Now we wish to report the oxidation of pyridine-2-carbaldehyde and 2-pyridyl ketone hydrazones. The starting substituted phenyl-2-pyridyl ketones were obtained from the corresponding alcohols with Ni-PO oxidation in good yields. Though, when the substituent was *p*-NO<sub>2</sub> or *m*-NO<sub>2</sub> on phenyl group, the Ni-PO oxidation could not afford the ketones and the starting alcohols were recovered.

The reaction of pyridine-2-carbaldehyde and NH<sub>2</sub>NH<sub>2</sub>H<sub>2</sub>O afforded *syn* and *anti* isomers, both isomers were reacted with *p*-nitrobenzaldehyde to the same benzylidene compound. Hydrazones which were obtained from the corresponding ketones and aldehydes were oxidized with Ni-PO in benzene solution at room temperature to yield 1,2,3-triazolo[1,5-a]pyridines in excellent yields(84.6-97.4%). N-Oxidation, nitration and halogenation of 1,2,3-triazolo[1,5-a]pyridines were reported.