Acta Crystallographica Section E
**Structure Reports Online**
ISSN 1600-5368

# 13-(4-Fluorophenyl)-12*H*-benzo[*f*]indeno-[1,2-*b*]quinolin-12-one

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Received 12 August 2006
Accepted 15 August 2006

**Key indicators**

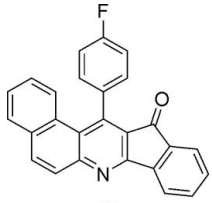
Single-crystal X-ray study
$T$ = 298 K
Mean $\sigma$(C–C) = 0.004 Å
$R$ factor = 0.051
$wR$ factor = 0.140
Data-to-parameter ratio = 11.8

For details of how these key indicators were automatically derived from the article, see http://journals.iucr.org/e.

The title compound, $C_{26}H_{14}FNO$, was synthesized by the reaction of 4-fluorobenzaldehyde, 2-naphthylamine and 1,3-indanedione in glycol under microwave irradiation. The pendent fluorophenyl ring makes a dihedral angle of 90.84 (1)° with the adjacent pyridine component of the fused ring system.

## Comment

Indenoquinoline derivatives show a wide range of biological properties, such as 5-HT-receptor binding activity, anti-inflammatory activity (Lu *et al.*, 2003), and also act as anti-tumor agents, inhibitors for steroid reductase (Deady *et al.*, 2000), acetylcholinesterase inhibitors, and antimalarials (Rampa *et al.*, 2000). We report here the crystal structure of the title compound, (I), prepared by the reaction of 4-fluorobenzaldehyde, 2-naphthylamine and 1,3-indanedione in glycol under microwave irradiation.




(I)

The pyridine ring, naphthalene ring and indenone ring all adopt planar conformations (Fig. 1). The dihedral angle between the C1/C9/C10/C11//C20/N1 and C21–C26 planes is 90.84 (1)°. The naphthalene and indenone rings form dihedral angles of 1.3 (2) and 1.1 (2)°, respectively, with the C1/C9/C10/C11//C20/N1 plane.

## Experimental

Compound (I) was prepared by the reaction of 4-fluorobenzaldehyde (1 mmol), 2-naphthylamine (1 mmol) and 1,3-indanedione (1 mmol) in glycol (2 ml) under microwave irradiation for 4 min. Single crystals of (I) suitable for X-ray diffraction were obtained by slow evaporation of a 95% aqueous ethanol solution (yield 95%; m.p. 573 K).

### *Crystal data*

$C_{26}H_{14}FNO$
$M_r$ = 375.38
Triclinic, $P\overline{1}$
$a$ = 7.908 (2) Å
$b$ = 9.935 (3) Å
$c$ = 12.188 (3) Å
$\alpha$ = 79.132 (4)°
$\beta$ = 86.569 (5)°
$\gamma$ = 71.716 (4)°
$V$ = 892.8 (4) Å$^3$
$Z$ = 2
$D_x$ = 1.396 Mg m$^{-3}$
Mo $K\alpha$ radiation
$\mu$ = 0.09 mm$^{-1}$
$T$ = 298 (2) K
Block, yellow
0.23 × 0.12 × 0.09 mm

*Data collection*

Bruker SMART CCD area-detector diffractometer
$\varphi$ and $\omega$ scans
Absorption correction: multi-scan (*SADABS*; Sheldrick, 1996)
$T_{min}$ = 0.979, $T_{max}$ = 0.992
4684 measured reflections
3102 independent reflections
1615 reflections with $I > 2\sigma(I)$
$R_{int}$ = 0.022
$\theta_{max}$ = 25.0°

*Refinement*

Refinement on $F^2$
$R[F^2 > 2\sigma(F^2)]$ = 0.051
$wR(F^2)$ = 0.140
$S$ = 1.04
3102 reflections
262 parameters
H-atom parameters constrained
$w = 1/[\sigma^2(F_o^2) + (0.0557P)^2 + 0.0462P]$ where $P = (F_o^2 + 2F_c^2)/3$
$(\Delta/\sigma)_{max} < 0.001$
$\Delta\rho_{max}$ = 0.25 e Å$^{-3}$
$\Delta\rho_{min}$ = −0.19 e Å$^{-3}$

H atoms were positioned geometrically and treated as riding, with C—H = 0.93 Å and $U_{iso}(H) = 1.2U_{eq}(C)$.

Data collection: *SMART* (Bruker, 1998); cell refinement: *SMART*; data reduction: *SAINT* (Bruker, 1999); program(s) used to solve structure: *SHELXS97* (Sheldrick, 1997); program(s) used to refine structure: *SHELXL97* (Sheldrick, 1997); molecular graphics: *SHELXTL* (Bruker, 1999); software used to prepare material for publication: *SHELXTL*.

The authors thank the National Natural Science Foundation of China (grant No. 20372057), the Open Foundation of the Key Laboratory of Organic Synthesis of Jiangsu Province, the College of Chemistry and Chemical Engineering, Suzhou University (grant No. JSK011), and the Key Laboratory of Biotechnology for Medicinal Plants of Jiangsu Province (grant No. 01AXL14) for financial support.

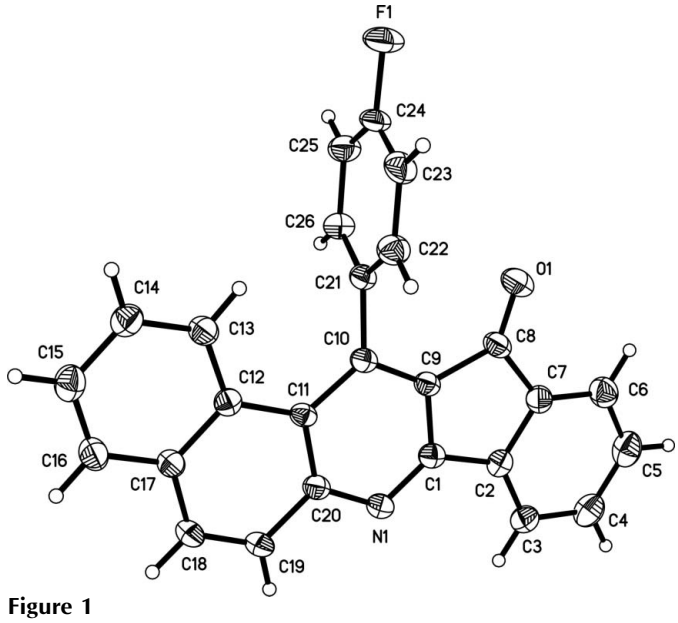



**Figure 1**
The structure of (I), showing 30% probability displacement ellipsoids.

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