consider his 1992 publication[3] as a reference material. One noteworthy point is that the base paper[3], is not even cited in Krishmurthy's 2001 publication[4].

Daniels has also questioned the naming of *N. karnatakaensis* based on the distributional status of the species. Naming of the species need not be related to endemism. It is an appropriately subjective consideration of the authors. The etymology in our paper[2] states that it was named in honour of the state of Karnataka, wherein the type locality, Kudremukh National Park, is situated. This species is known to be endemic to Karnataka, since there is no other reported incidence of its occurrence from elsewhere. Daniels has only presumed the distribution of the species extending to Kerala and Tamil Nadu[6].

In order to endorse his views and points, Daniels[1] quotes Winston's work on taxonomy and his own review of that work. We intend to stress here that it is not in the perspective of Winston's work that our study result has been published[2], but based on the principles described in the International Code for Zoological Nomenclature (ICZN, 1999 with effect from 1 January 2000)[8]. The Code[8] specifies that a species described after 1999 must have an explicit fixation of deposition in public collections of name-bearing types in accordance with Article 16.4, 72.3 and sub clause therein. We add that the name *N. hussaini* is invalid, not the species described under that unavailable name, because of the above-cited reason. Its species validity having already been realized owing to its definitive description, we replaced its invalid name with *N. karnatakaensis*, with a type designate, depositing a specimen following the Code. This was the root cause of the taxonomic debate.

A technical debate was raised in 2001 by Biju[9], not including *N. hussaini* in his publication, since it required re-evaluation. This point was emphasized by Das and Kunte[10] in 2005, citing the ICZN norms[8]. In fact, this spurred the authors to rectify the procedural lapses, ultimately leading to the 2007 publication[2].

Correcting a discrepancy in one's taxonomic work is a necessity and is part of updating the knowledge on any taxonomic case or issue in question. That is what makes taxonomy a dynamic science. No taxonomist would think that it is an accusation when a flaw in his work is pointed out and corrected. In the present case[2], the taxonomists who described *N. hussaini* themselves have worked with mutual understanding, to set right the flaw that has crept in, and make it taxonomically a standard one.

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Thickness estimation of Deccan Flood basalts of the Koyna area, Maharashtra (India) and implications for recurring seismic activity

Naik *et al.*[1] have evinced interest in our paper which deals with the structure and seismicity of the Koyna region[2]. However, they seem to have missed the message of the paper. The comments, when viewed in proper perspective appear totally unreasonable and show their lack of knowledge about recent findings as well as current thinking on Deccan traps based on geophysical studies. On this subject, several papers are available, including ours, which can be accessed through the internet. However, since Deccan traps have become an important topic due to occurrences of large damaging earthquakes in the recent past like the Koyna (1967), Latur (1993) and Bhuj (2001), issues such as those raised by Naik *et al.*[1] need to be addressed in the broader interest of the general scientific community.

Naik *et al.*[1] often cite 4–5 decade old Geological Survey/Central Ground Water Board reports, which are normally inaccessible to readers. However, a detailed published work is now available on the nature of Deccan trap lavas and its underlying granitic–gneissic basement[3]. The work describes full-fledged lithologic characteristics of vertical Deccan trap sequences as well as underlying crystalline basement penetrated by a 617 m deep borehole (KLR-1), drilled in the Killari–Latur seismogenic region of Maharashtra (Figure 1). It was drilled by courtesy of the National Geophysical Research Institute (NGRI), Hyderabad and Atomic Minerals Directorate (AMD), Hyderabad, specifically to understand subsurface structure of the basement and possible reason for the occurrence of the Latur earthquake[4]. This unique borehole, located near Killari village (18°03′07″N; 76°33′20″E), penetrated 338 m of Deccan basalts and ~280 m of 2.5-Ga-old crystalline basement belonging to the Eastern Dharwar Craton. The detailed mineralogical study of Deccan basalt cores yielded information on the occurrence of rare minerals like moganite[5] and ferrous saponite[6,7] and rare zeolites[8], indicating gradual increase of metamorphic pressure as a function of depth. A large number of density measurements was also performed on the core samples of the borehole.

The 338 m thick Deccan trap sequence consisting of eight flows (Poladpur and Ambenali formations of Wai subgroup) was found to contain 53% of massive variety and the remaining 47% vesicular and amygdaloidal (non-massive) variety (Figure 2). Average density of the massive variety was reported to be 2.90 g/cm^3, while that of non-massive variety was only 2.36 g/cm^3. Mean density of the Deccan trap sequence was thus 2.65 g/cm^3. Similarly, a wet density of 2.56 g/cm^3 was found for the non-massive variety. Hence, the porosities of the non-massive variety would be 20% (i.e. 2.56 – 2.36 g/cm^3), which is similar to that reported (17%) in our paper[2]. In view of the above findings, we inferred a density of 2.58 g/cm^3 for the Deccan volcanics below the Koyna gravity low, which is almost the same as the wet density of 2.56 g/cm^3 of the non-massive variety. In the Bor Ghat section too[9], amygdaloidal basalts occur as independent flows, sometimes being quite thick, making up to 314 m out of the 475 m of basalt exposed in the section. It will be incorrect to say that the thick section encountered in Latur or Bor Ghat will be very much different from that found below Koyna. Lower densities of Deccan traps would also conform to the measured *P*-wave velocity of 4.7 km/s within the trap rock[10], which would indicate[11] a density close to 2.52 g/cm^3.

If we consider the entire 1.5 km thick volcanics column as of massive variety, the low gravity field observed over Koyna would not have matched, unless we introduce low density within the crust and contradict the presence of quite high *P*-wave velocity just below the Koyna basement. Our recent analysis of broadband seismic data also suggests that almost 5 km from the surface to as much as 30 km depth, the *S*-velocity below the Deccan traps is much higher than the sur-

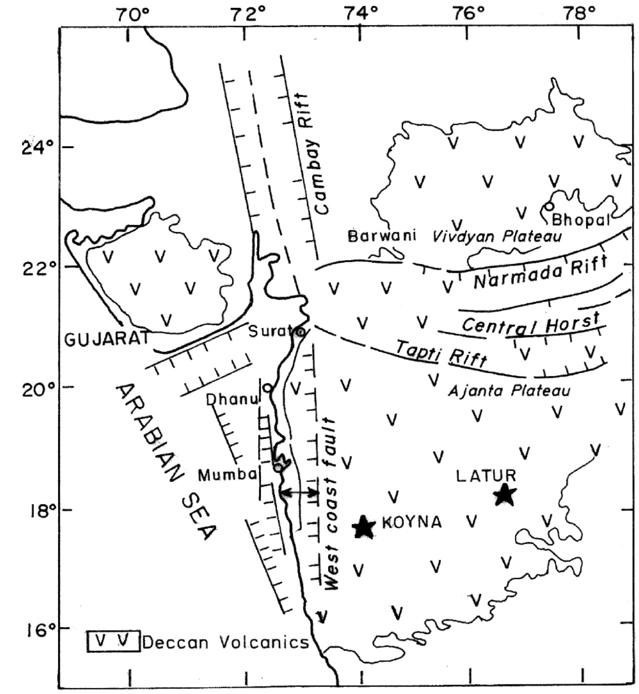

Figure 1. Map of India showing locations of Latur and Koyna earthquake zones (shown as stars) in the Deccan trap region. Locations of major rift valleys and faulted zones are also shown.

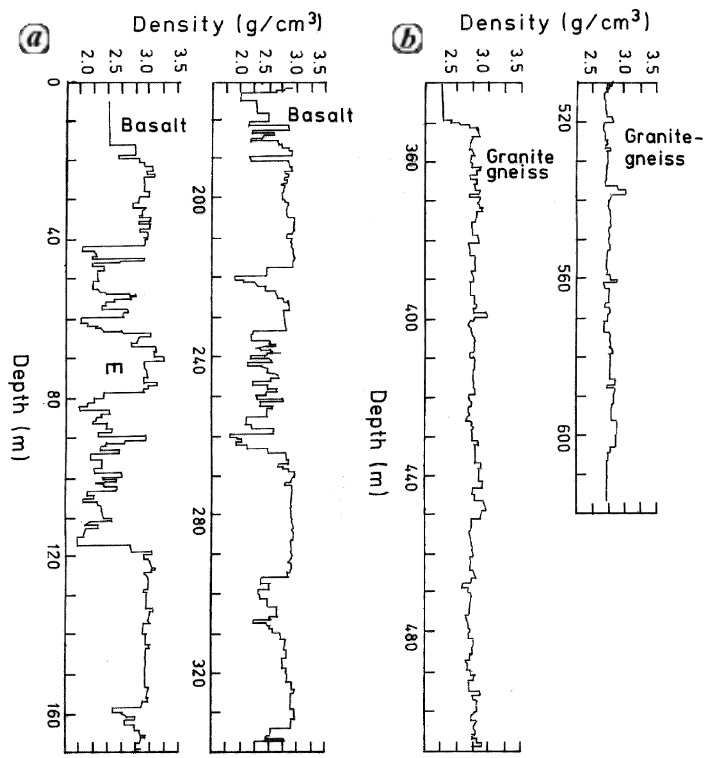

Figure 2. Measured density–depth distribution in (*a*) basaltic column and (*b*) underlying granitic–gneissic basement, as encountered in the borehole KLR-1 drilled at the Killari (Latur, Maharashtra) seismogenic region[3].

rounding region, due to large-scale influx of magmatic material into the crust. Besides, a high *P*-wave velocity of 6.25–6.40 km/s at the basement level would suggest the absence of any sediments below the trap rocks[10,12]. Therefore, the possibility of low density material within the crust, other than the trap rocks, can be ruled out. There are also several reports of large-scale influx of fluid below the Koyna seismic zone[13]. This can be possible only if the basalts are of non-massive variety and porous. Presence of porous and permeable medium around a tectonic fault zone would only enhance fluid percolation, which ultimately causes seismic instability along the fault.

The 280 m thick, penetrated crystalline basement consisting of migmatitic gneisses–porphyritic granites (?) below Killari belongs to the Eastern Dharwar Craton. Measured density[3] (Figure 2) averages 2.76 g/cm^3 (sometimes reaching >2.80 g/cm^3), which is much higher than a density of 2.67 g/cm^3, usually considered for the granitic–gneissic crust. There is no reason why similar basement should not exist below the Koyna seismogenic region, specially in view of the very high *P*-wave velocity (6.25–6.40 km/s)[10,12] at the basement level. If we convert the Koyna basement velocity into density following Barton[11], we get a value of 2.84–2.87 g/cm^3, which is even higher than 2.76 g/cm^3 used in our study.

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Are polyphagous aleyrodids more diverse in puparial morphology?

Insect pests being documented for many agricultural and horticultural crops are of global concern for controlling and minimizing damage potential. To record bio-invasion of pests and recognize their potential biological control agents, accurate pest identification often challenges taxonomic expertise due to morphological variations or phenotypic plasticity. Whiteflies (Hemiptera: Aleyrodidae) are one among the sucking pests that show phenotypic plasticity depending on the host plant cuticle on which they develop, which resulted in several species synonymies in past. The variable morphology of the immobile fourth nymphal instar or 'pupal case', the stage which is used for identification, causes difficult circumstances for whitefly identification. Among the 1559 described species under 161 genera in the world, the whiteflies *Aleurolobus marlatti* (Quaintance), *Bemisia tobaci* (Gennadius) and *Trialeurodes vaporariorum* (Westwood) are polyphagous and show host-associated variations. Host-correlated variations in puparial morphology may have evolved for concealment from natural enemies, thus providing survival success to species. Host specificity is not obvious in aleyrodids, but so far recorded variations are from polyphagous species. The spiraling whitefly, *A. dispersus* Russell, was recorded from the Indian subcontinent in 1995, and is now known to infest more than 500 host plants worldwide. The references pertaining to this species do not state any phenotypic variation related to puparial morphology. We observed a large number of specimens of this species collected from Western Ghats (India) during 2001–05. One puparium collected from *Bauhinia variegata* L. (Fabaceae), Mangalore (India: Karnataka), 14.iii.2001, A. K. Dubey (deposited in Institute of Wood Science and Technology, Bangalore collection), showed five setae on lingula (the members of the subfamily Aleurodicinae have only four setae; Figure 1 *a*). In another puparium collected from *Thespesia populnea* (L.) (Malvaceae), Coimbatore (India: Tamil Nadu), 19.iii.2001, A. K. Dubey, multi-chambered pockets were exhibited on cephalothoracic and abdominal segment sutures. The shape of the lingula varied within samples (Figure 1 *a–d*) even from the same host plant, and the ventral setae position varied, either being present below the inner wall of vasiform orifice (Figure 1 *c*) or posterior to the vasiform orifice near the anterior end of the lingula (Figure 1 *d*). Interestingly, submarginal setae on the posterior abdominal area were found varying in position; sometimes they are located laterad of apical end of lingula (Figure 1 *b*). Minute wide-rimmed pores were absent on the inner anterolateral margin of the cephalic and abdominal compound pores. Although taxonomic characters were found varying within the samples, no variation was ob-