LETTER TO THE EDITOR

Differing Hydrocarbon Profiles of Diesel Oils

Sir:

In the interests of clarity, especially for North American readers, it is necessary to correct a possibly confusing description of diesel oil (presumably Malaysian) published in a recent issue of the *Journal of the American Oil Chemists' Society* (1). In Figure 1A is reproduced the GC profile that was included in a recent paper on recovery of diesel oil from palm oil. The obvious sharp peaks for alkane hydrocarbons from C_{12} to C_{20} do correspond to those expected in North American diesel oil as shown in Figure 1B, upper profile. The subsequent array of peaks for Malaysian diesel oil ranging from C_{20} to C_{33} is unusual in comparison with other samples of diesel oil. Sharp peaks are also not usually found as major peaks in lubricating oils (Fig. 1B, lower profile). Independently, a further profile (not shown) of hydrocarbon contaminants recovered from water in North America shows the same GC profile of sharp peaks labeled "diesel," and a later-eluting and smooth hump for lubricating oil, with only few minor peaks (3).

Different petroleum companies sell different distillate cuts suited to different markets, or these products may differ because they are based on different crude petroleums. The small baseline hump in Figure 1 in the C_{24}–C_{30} range corresponds roughly to the bulk of the chain lengths for a lubricating oil in Figure 1B, and presumably both are due to a mixture of complex isomeric alkanes and/or aromatic hydrocarbons.

Two-cycle (two-stroke), motorcyle-size, engines have lubricating oil added to the fuel, usually gasoline, but this would not seem to explain the presence of the longer-chain alkane peaks of Figure 1. Possibly these higher-melting (>50°C) alkanes would form waxes and clog fuel line filters in colder climates, but not in Malaysia, part of a large area where adulteration of petroleum products has become a serious problem (4).

In cases of suspected contamination of fats with hydrocarbons, food scientists and technologists must be aware of the varied composition of diesel fuel and mineral oil and take note of the country where the oil originated and of the way it

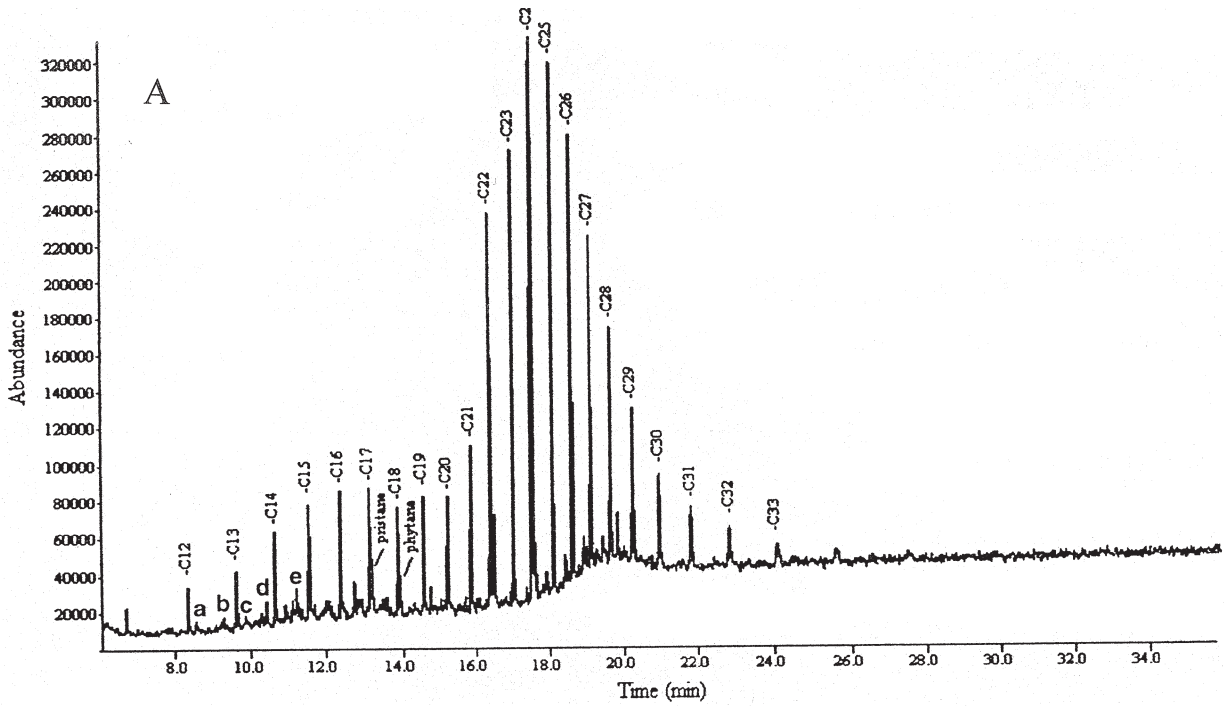

FIG. 1. Comparison of hydrocarbon profile (A) reported for Malaysian diesel oil (1) with profiles (B) published for diesel fuel and motor oil by Draper *et al.* (2). Part B reproduced by permission of *Journal of AOAC International.*

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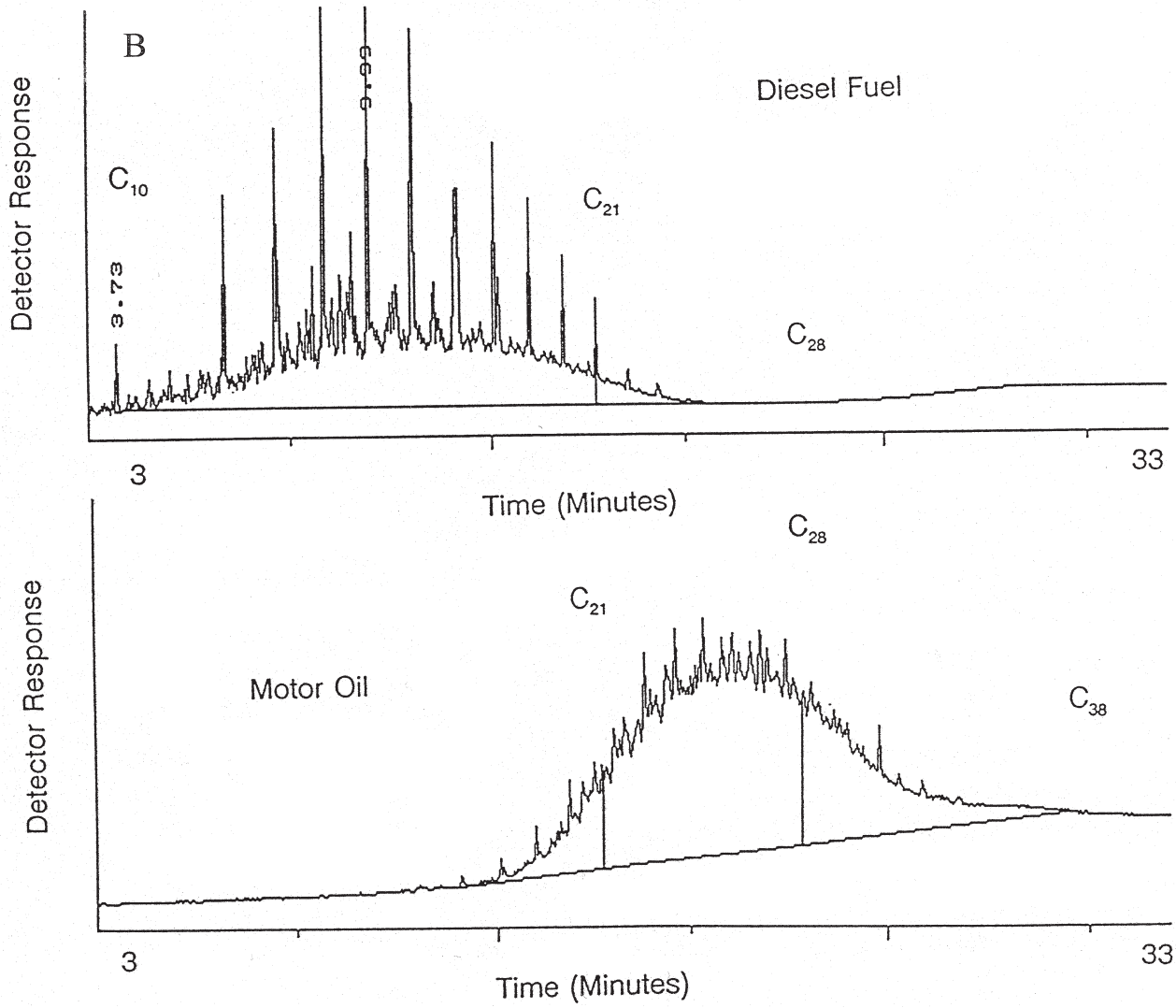

FIG. 1. (continued)

has been transported. The latter problem must be taken into consideration as shown a decade ago by Grob *et al.* (5) for mineral oil in jute sacking.

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